



Mrs. Vernon Castle as she appears in the International's serial "Patria" while motor boating. In the larger illustration Mrs. Castle is shown with Milton Sills (Captain Parr) making a motor boat trip from Newport to New York

Contents February, 1917

Cover by Wm. de Leftwich Dodge

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February, 1917

MOTOR BOATING

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The Show Boat For 1917

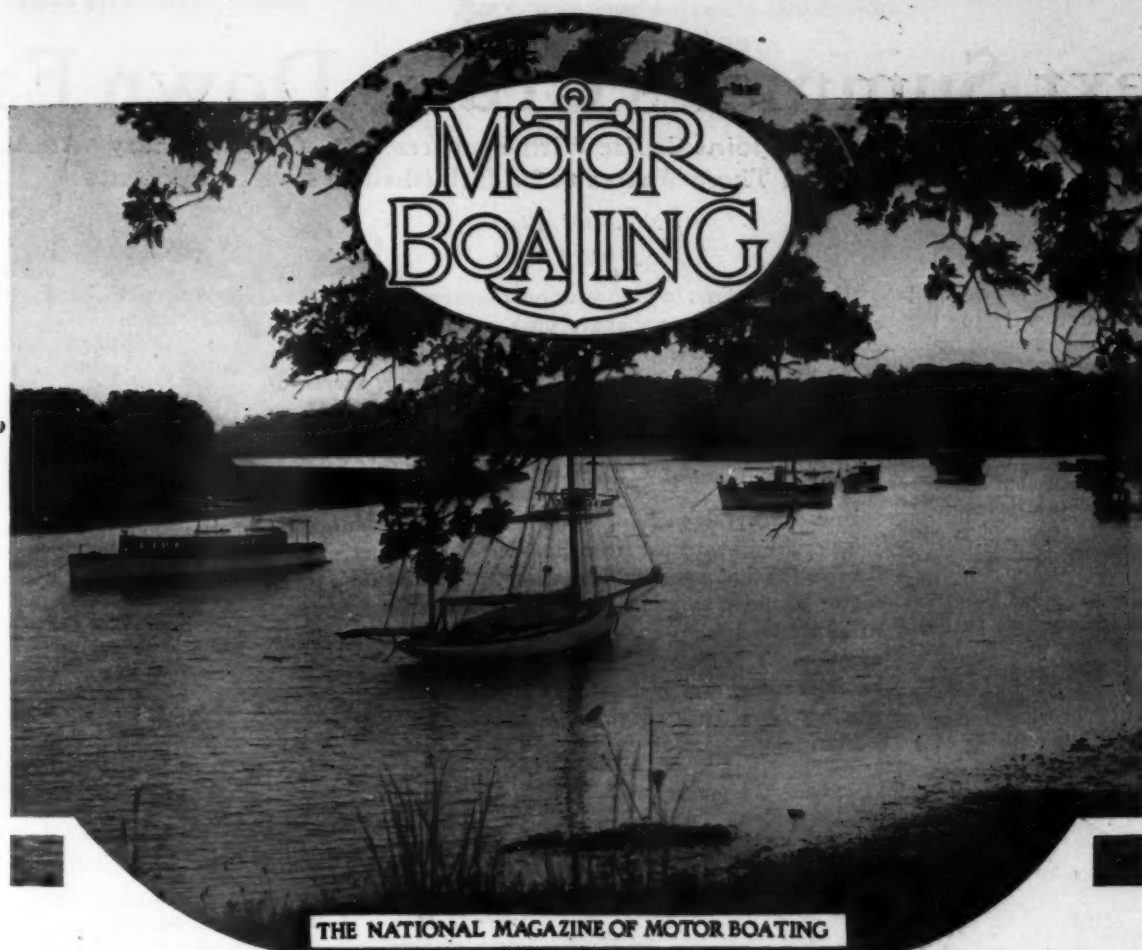
Following its policy of preceding years, the Speedway Company will again exhibit a stock cruiser of exceptional merit.

The design does not favor the prevailing tendency of building miniature torpedo boats, but is rather an expression of all that is desirable in a craft created solely for pleasure, yet convertible, with minimum reconstruction, into a Scout Cruiser for serious duty.

Speedway

GAS ENGINE & POWER COMPANY
AND
CHAS. L. SEABURY & COMPANY
CONSOLIDATED

Dept.' M. Morris Heights New York City



Why I Do Not Own a Motor Boat

By Herbert Kaufman

SOME months ago, when talking with the editor of a magazine for whom I write articles on topics with which I am familiar, I met the editor of MoToR BoatinG, a magazine devoted to a subject with which I am not acquainted. He asked me to contribute to this number and I, in my rash ignorance, promised to do the job.

Then my troubles began. Try as I would, I couldn't get a space-deserving slant on the matter.

I have occasionally crawled around Synapuxant Bay in Captain Levering Bunting's launch, but the experience was hardly illuminating. And I once rode in a cruiser from Palm Beach to Jupiter Lighthouse.

My memory also suffers from sundry stuttering journeys on a Bayside vessel which assumed to be driven by gasoline, but was mostly impelled by profanity and persuasion.

But I never owned a motor boat.

In hope that I might discover an idea with which to coax inspiration, I searched the advertising sections of various newspapers and magazines—of a sort that the unboated persons usually read—and found—nothing.

And through that discovery I came to write this. In brief, I reversed English and decided to explain to myself—as typical of a good many thousand other average men—why I do not own a motor boat.

First of all, I can't remember that anyone ever tried to sell me one. I am sure that I never received a motor boat catalogue and I never saw an advertisement designed to convince me that I should possess a water automobile.

There are, to my knowledge, no newspapers with motor boat departments. Therefore, I've lived to the present, unsought and unthought of, by any manufacturer or agent.

I haven't the slightest notion of original costs or maintenance charges—of improvements—of the price which will get me a reliable, fairly speedy model.

All of which forces me to the conclusion that I and the thousands more or less in my position have been inexcusably neglected as potential owners.

Enthusiasm cannot burn without fuel, and what motor boats I have met were decided dampeners—pestiferous, smelly bombardments operated by liverymen whose difficulties with their engines firmly convinced me that a tyro would be utterly at sea with the kicking, snarly, dirty, sputtering mess of animated junk which passes for a power plant in the usual hired craft.

I wonder if half as many automobiles would have been sold to the general community if the rented machines and taxis through which most folk became addicted to motor cars had been of the same hit-and-miss and stop-and-go variety?

What's the matter with you motor boat builders? Where's your imagination? Why did you let the automobile manufacturers make a bigger market in a year than you've developed in twenty?

Yours was a simple proposition. The best roads under the stars were already in existence for you—smoother than a speedway track—more accessible mileage than a dozen Lincoln Highways—the loveliest thoroughfares of earth—landscaped by the Aeons—hedged with romance and the fantasy of misty distances.

Why don't you remind us poor landlubbers—tired, irritable heat-sick plodders—of rivers waiting at dusk to speed us into peace—of crooning night on water that will lie like cool, healing fingers on our weary minds?

Why don't you cry the call of balsam pines crowding to the lake edge?

Do you know that the oldest urge in man is the lure of wave and ripple?

Adventure rode stream-ways before the first horse was tamed or the first wheel hewn.

We are all river men at heart and our sires dwelt on the river bank.

What have you done to bid us back to the river—to send desire roving back to the sea?

You print illustrations—you do not paint fancy.

You assume that our knowledge is your knowledge—that we feel the needs you do not stimulate.

(Continued on page 49)

Next Summer's Cruise Down East

Several Organizations Planning a Joint Cruise With Features Out of the Ordinary—An Account of the Possibilities of These Waters to Be Published in Five Instalments

By Norman I. Black

PART I.

FOR many years we had looked forward to the time when we might make the trip around Mt. Desert, and we were quite excited when our plans worked out so that we could start with the Boston Yacht Club, spend a week with the fleet and then continue for a couple of weeks on a gipsy cruise, going from place to place without schedule. We had been many times along the coast as far as Camden, and we were glad to take this part of the trip with the Boston boatmen, as their company and extra amusements enhanced the pleasure of covering familiar territory. When cruising over new territory we always greatly prefer to go alone, as

Now is the time to plan your next summer's cruise. In a month or two all your spare time will be occupied with putting your good ship into commission and preparing her for the initial plunge of 1917. So get out your charts today, and begin to study them. You will be surprised how your interest in them will grow. Before long you will find yourself planning a harbor for each night's stop.

There are no cruising grounds so fascinating as those of Maine. Several yachting organizations are planning a joint cruise down East from Boston next summer, and it is expected that a general invitation will be extended to all motor boatmen to join them. The pleasures and benefits to be derived from such a scheme are too numerous to mention. This series in five parts on cruising in Maine will be interesting and instructive to every motor boatman whether he intends to go there next summer or not.—Editor.

ground swell, and the motor boats loafing along at slow speed ready to assist if the wind dropped off altogether.

We had run out from Cliff Island (Crotch Island on the chart), our summer home, with a party of friends aboard to welcome and escort the Boston yachts into Portland Harbor. Strung along for miles, with here and there two or three windjammers bunched for a friendly rub, they made an interesting sight. Before dark nearly all were safely anchored at Peaks Island, the Coney of Casco Bay, where their owners were to be entertained that evening and the following day with dances, ball games, races

and the usual round of gaiety and frolic. We spent that day at Cliff Island stowing away the hundred and one things necessary for such a trip. It is wonderful how many things can be put into a 30-foot boat with ample room left for the crew of captain-engineer and mate-cook.

Our Dhila is a 30 x 9 x 2½-foot raised-deck cruiser, designed by Morris M. Whitaker and built by Jacobs in the very finest manner—planked without a knot, and finished in mahogany inside and out. She has a fifty-gallon copper fresh water tank in the bow feeding by gravity to a sink in the galley, and her arrangements include a stateroom with two transom berths and two pipe berths, as well as a contraption whereby the whole stateroom may be made into a full width canvas berth hooking from side to side of the boat. Next aft there is a full length clothes locker and toilet, and the galley opposite is equipped with a range and small alcohol stove, porcelain sink, fair sized ice chest and tool lockers. The



Sky Pilot, a type of boat well suited for cruising. Once only a windjammer, but now a motor boat

then the enchantment of exploration is added to the delicious hazard of unknown rocks and channels, and one is obliged to study charts and figure out courses and distances on his own account—which to our minds is half the pleasure of cruising. The exquisite joy one feels in crawling into a small harbor or inlet at slow speed, ever watching over the side for some uncharted rocks or shoal, and wondering if any of the other fellows have even seen this delightful little spot, is hardly to be equalled in this existence.

We first sighted the Boston Y. C. craft as they came around Cape Elizabeth and Richmonds Island, the sailboats with a light breeze behind them dipping and rolling on the slow



The forward deck of Dhila, ship-shape and ready for action

engine is a 20 h.p. medium-duty Buffalo with generator for the electric lights and storage battery. A seven-gallon copper tank is installed under the bridge deck and over the engine to hold lubricating oil, and this feeds directly to the thirteen-feed oiler on the engine. It has proved a great convenience, for the tank is filled from the deck. The large self-bailing cockpit in conjunction with two forty-gallon Jasco tanks under



Maine's is truly a rock-bound coast, but there is not an inch of it which is unprotected by harbors safe for motor craft

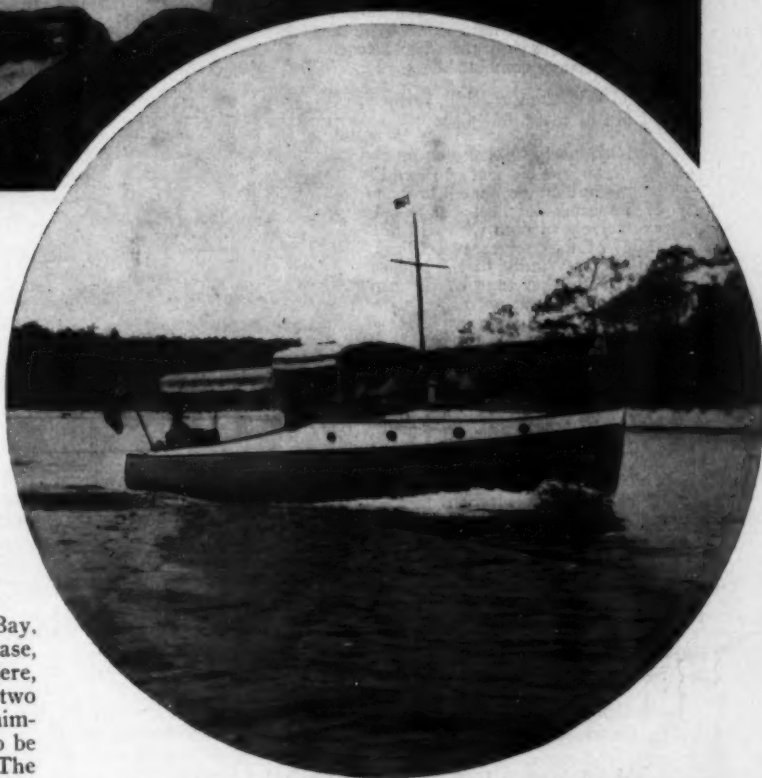
the side seats to drain outboard in case of a leak makes the boat comfortable and safe. Dhila is perhaps a bit exceptional in many ways, as she has full headroom for us (a bit less than six feet), and does not look high-sided. She will make $9\frac{1}{2}$ to 10 miles an hour when pushed, consuming three gallons of gasoline, while if run at our usual cruising speed of from 7 to 8 miles she uses less than two gallons.

From our mooring, the morning after the celebration on Peaks, we could see the Boston Y. C. boats passing out through White Head passage, so we started the engine, bade farewell to our friends, and passed around the northeast end of Cliff Island and Jewells Island to head for Halfway Rock and join the fleet.

Jewells Island, one of the outside group in Casco Bay, has many fascinating pirate legends connected with it. Chase, a contemporary of Captain Kidd, had his stronghold there, and the original house (which unfortunately burned down two years ago) had a secret chamber under the mammoth old chimney. From it passages or tunnels, which were supposed to be of use in case of a siege, led to the shore and spring. The pirates are supposed to have put false lights on the ocean side of the island to decoy unfortunate mariners on to the treacherous ledges, and at the northeast end of the island there is an ancient cemetery where it is alleged that the victims are buried. Many people have dug for gold or treasure there, but without success. At an early date there was a garrison house there and in 1676 it gave refuge to the few inhabitants of Portland, at that time called Falmouth, who escaped from the destruction and massacre of the town. Besides the interest which these tales lend to the island, it is appropriately named, for it is indeed a jewel, and the loveliest in the bay, with impenetrably dense woods, wonderful cliffs, rocks and sandy beaches and a perfect harbor.

On Ministerial Island there are some ancient clam heaps left by the Indians who used to come in the summer to the islands in the bay. While the men fished and hunted, the squaws dug and dried clams for the winter's store of food.

A little beyond is Eagle Island, the beautiful summer home of Rear Admiral Robert E. Peary, who once told me that as a boy he had two great wishes—one to be an explorer and the other to own Eagle Island, which had been the camping site of his youthful explorations. This was a most natural wish, as the island has a commanding situation on the main thoroughfare through the islands, wonderful views in all directions, thick woods and the kind of precipitous rocks and cliffs that make the coast of Maine famous. Then there is Upper Flag



Dhila, a Whitaker-designed 30-footer, owned by the writer

Island, the site suggested by Commander Peary for an aviation station for Casco Bay. Little Mark Island, on which a lonely white monument with a vertical black stripe, newly painted, points out the eastern portal of Casco Bay, and a little further off we could see Baileys Island and then Orrs Island, made famous by Harriet Beecher Stowe's novel, "The Pearl of Orrs Island."

One of the fine things about the Maine Coast is the difference in character of the thousands of islands, of which each has its own stories and legends, and its individual charm of rocks, beaches and woods, primitive and rugged. Although many people think there is one island for every day in the year in Casco Bay, there are actually only 122 if one omits counting mere rocks where nothing but a sea-gull could find footing.

As we approached the fleet of fifty or more sails, rising and falling over the lazy ground swell, it was a charming spectacle, for by this time the boats were spread out over a space of a couple of miles. On nearing Small Point we could see the entrance to the New Meadows River with the little fishing village of Cundy Harbor and its cod liver oil wharf. Further up the river is the New Meadows Inn, famous for its shore dinners, and near Cundy Harbor is the much talked of Malaga Island, so primitive in its ideals and customs that the Govern-

(Continued on page 68)

The Command of the Air

The Vital Need of This Country for Adequate Aeronautic Defense Emphasized by the Zeppelin Explorer Points Out That We Have the Motors, the Planes and the Material to Make A

By Rear Admiral

Chairman, National Aerial Coast Patrol Commission

COMMAND of the air" is a new expression in America, but one which occurs quite frequently in official reports of the warring countries. I shall quote herewith a few public statements from prominent men abroad regarding the importance of "command of the air."

Mr. Balfour on the floor of the House of Commons said:

"The time is here when command of the sea will be of no value to Great Britain without corresponding command of the air."

Lord Charles Beresford on the floor of the House of Lords:

"The time is here when the air service of Great Britain will be more vital for her safety than her Army and her Navy combined."

Colonel Winston Churchill, formerly First Lord of the Admiralty:

"Ultimately, and the sooner the better, the air service should be one unified permanent branch of imperial defense, composed exclusively of men who will not think of themselves as soldiers, sailors and individuals, but as airmen and servants of an arm which possibly at no distant date may be the dominating arm of war."

Lord Montagu, of Beaulieu:

"... will before long be forced to create an Air Ministry by law, which regards no precedent, and which fears no Government. The immense development of aircraft in all directions alone will compel the creation of an air department."

General Petain, one of the defenders of Verdun, on the floor of the Chamber of Deputies:

"I see France in the near future with 50,000 aeroplanes."

Lord Montagu, of Beaulieu, in the House of Lords, March 9, 1915, said:

"At the present time the air service is merely auxiliary to the fighting forces of the Navy and Army. I can see a time coming when the air service will be more important than the Army and Navy. We must get into the habit of looking at the air service not as an auxiliary to the Army and Navy, but as a great service which is an establishment of itself, and to which we shall have to look in future years for the defense of this country. The advantages of our insularity are rapidly disappearing. Upon the efficiency of the air service much will depend. Let it not be said with shame of our generation that we did not trouble to guard in the air what our forefathers won on the sea."

Lord Beresford said:

"The new air warfare is going to be of so tremendous a character that it may supersede the Army and Navy. We should be ahead in the air, the same as we are on the water."

Lord Montagu, of Beaulieu, guest of the Liberal War Committee, at a luncheon at the House of Commons, March 22, said among other things:

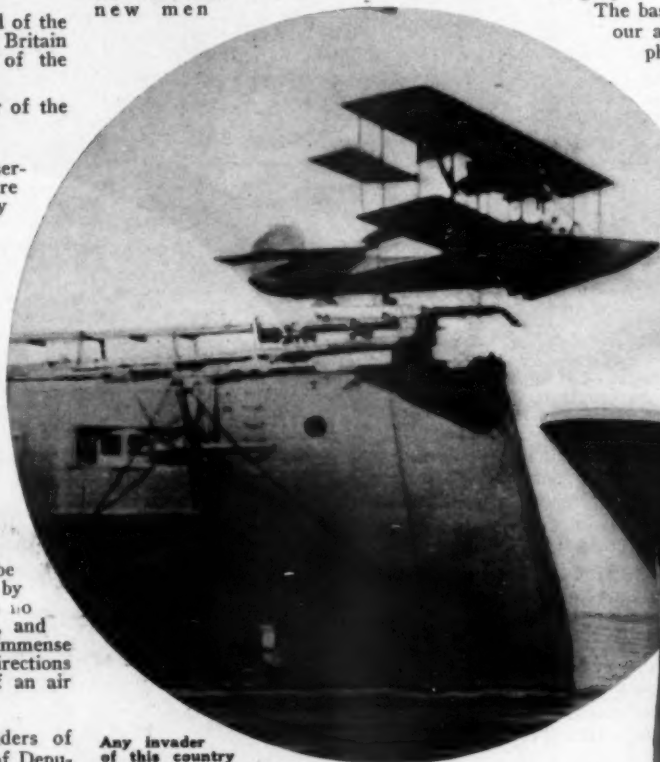
"The struggle for supremacy in the air is only just beginning, and will not stop

when peace comes. Compared with the cost of dreadnaughts, field guns, and armies in the field, the cost of even a huge aerial fleet would be... now in our statesmen and in our nation is more power of imagination. They can neither win nor hold an Empire merely by safe policies. Safe men are all very well for times of peace. But time comes when they may be dangerous. What we want now is new men

plies equally to us. It might be said in Washington in Committee room, or on the floor of Congress. One week of war cost will give us protection. One week of present war cost to Great Britain would give this country such a fleet of aeroplanes as could in an emergency rise from our shores literally like a flock of sea-gulls, to defend and insure our national integrity.

The basic ideals of this country, born of our ancestry, our national growth, our physical position and our bieness and realization, are our ever-present though sometimes unconscious trend in every line of effort. Here is an opportunity for us to make good on these ideals on a great scale, by taking up in earnest the air service of this nation, recognizing that it is of crucial importance, and putting it and ourselves in the work van.

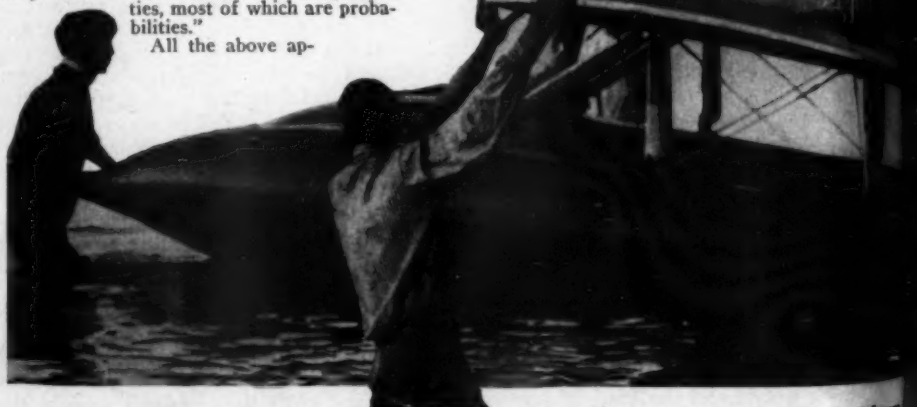
Our geographi-



Any invader of this country would come equipped to launch planes from his battleships. Shouldn't we have the material and personnel to combat them?

with new ideas. The problems of the air are all new. There are no precedents to bear in mind, no files to refer to, no historical works to consult. The new service will need leaders who have ideals, foresight, imagination and scientific training. These leaders must always have a clear vision of future possibilities, most of which are probabilities."

All the above ap-



The twin-motored Curtiss seaplane with which Victor Carlstrom flew 614 miles in 8 hours and 15 minutes, thereby winning the Curtiss Marine Flying Trophy

and the Aerial Coast Patrol

Raids on the Eastern Counties of England No Less Than by the Lusitania Horror—Famous
 erica Foremost in Aviation But That We Lack Trained Aviators and Congressional Budgets

Robert E. Peary

Member Board of Governors, Aero Club of America

cal position, our national rank and standing, our national safety demand it. Our resources and mechanical genius not only permit it, but make it easily possible. Shall we do it?

Three years ago England was, as we are now, asleep, and with more reason than we, for the possibilities of the seaplane were not generally known, while we now have before us an object lesson which no intelligent mind that knows the facts can fail to understand. They felt secure as we do now. The idea that anything could reach or harm them in their tight little island was preposterous.

We must learn and utilize now the lesson that Providence has put before us. We have the chance to learn it in peace and sunshine. Our neighbors across the water are learning it in tears and bloodshed.

With the money assured, the Aero Coast Patrol system can be begun at once, and completed in a year at a cost that will be trivial compared with its value.

Suppose such a horror from the air should fall upon one of our cities as has already fallen more than once upon the east coast of England, leaving a trail of dead and dismembered women and children, mutilated men and ruined property? Would the whole country flame with rage? Would there be a snarl of "Why has this happened? Who is responsible? Why were we not ready to prevent it?"

In England they are concentrating their

efforts to put 10,000 aeroplanes in service and keep them in service, which means getting 40,000 aeroplanes a year, since the average life of such a machine in war is about three months. I understand that they have over 10,000 aeroplanes now—but not yet the 30,000 additional.

Although we have only about one hundred military aviators in the United States, we have extensive aeronautic resources. As Alan R. Hawley, the president of the Aero Club of America, points out in his report:

"The lines of development of American aeronautics are many and would take a book to tell about them all. Besides, some of the most important developments cannot be made public. These include remarkable aeroplanes and motors being built, plans for establishing air lines in the United States and South and Central America, plans to develop our aerial defenses, and plans for extraordinary aeronautic events.

"It is the knowledge of achievements of hundreds and the plans of thousands of people that leads us to believe that America is to be first in aeronautics in the near future.

"Progress in aeronautics in this country is, indeed, so fast that everything seems possible. It is often our experience to have people come to us or write to us deploring the fact that we have not in this country motors of large horsepower and large or very fast aeroplanes,

such as they have in Europe—and we take great pleasure in informing them that we have motors of higher horsepower and larger and faster aeroplanes than they have in Europe!

"For instance, there are, to our knowledge, a dozen different types between 80 h.p. and 400 h.p. and as many different types between 80 h.p. and 125 h.p. Some are better than the others, some are being tested, some are about to be tested. We have at least one—but would probably have no trouble in getting many more—type of aeroplane capable of a speed of 125 miles an hour, and having a lifting capacity of fifteen tons. While no European nation has more than two or three types of twin-motored battleplanes, twelve American firms put in bids for the U. S. Army twin-motored hydroaeroplanes. The only shortcoming is, perhaps, the usual lack of shop "finish." But this is rapidly being overcome.

"America is to be first in aeronautics," Mr. Hawley concludes, "because our aeroplanes and our aeronautic motors are as efficient as the best European product, our aviators are as good as any, our people and the press are thoroughly appreciative of the wonder of human flight; our need for aerial defense is as extensive as in any other country; we have more possibilities for the employment of aircraft for transportation than any other country; we have more sea coast, lakes and rivers where one can use flying boats for sport and passenger-carrying than any other single country; there has been more attention given to aeronautics by civilians in this country than in any other country; we

have 19,000,000 young men of military age, the majority of whom, if a vote were

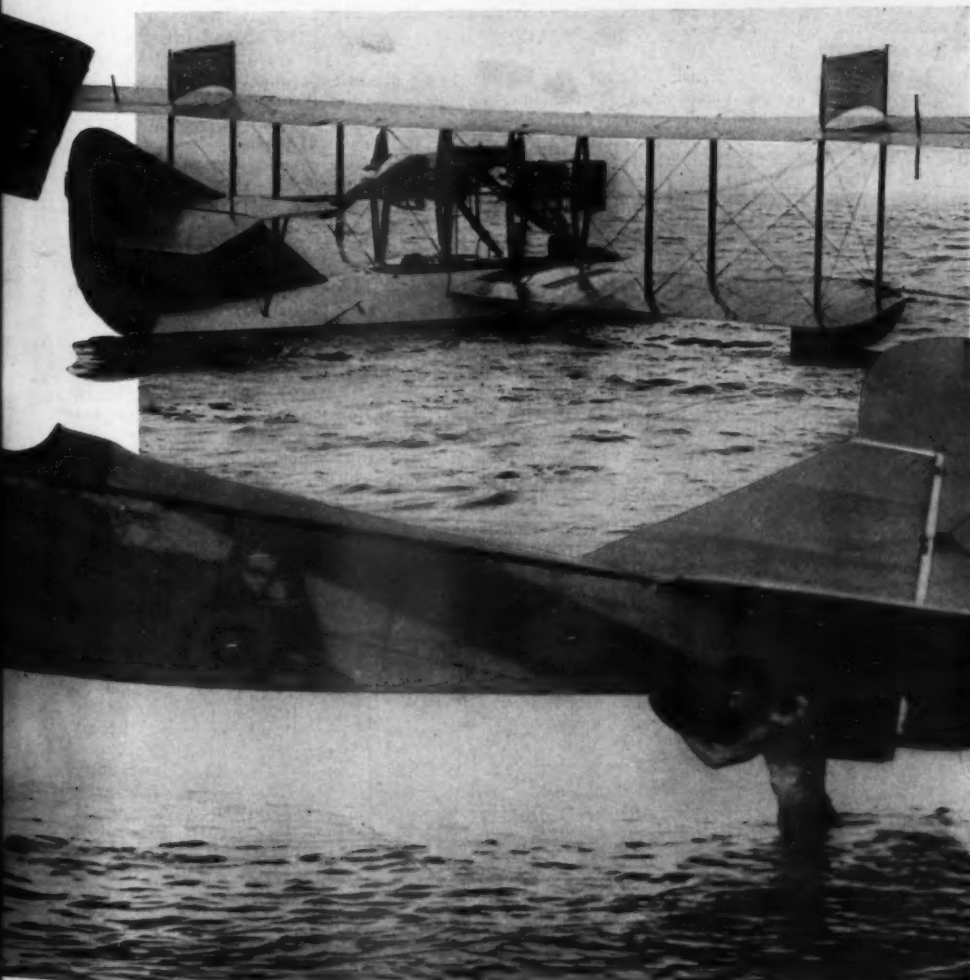
taken, would be shown to wish to take up aviation. And there is no gainsaying that we have more ingenuity and spirit of enterprise here than anywhere else."

To bring the command of the air within reach of the United States we need essentially:

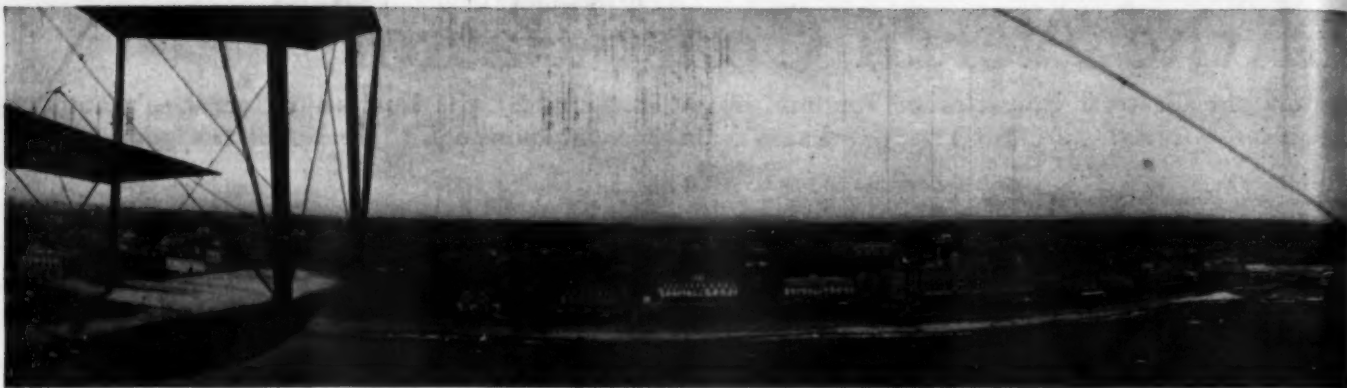
A Department of Aeronautics, separate from and independent of both the Army and the Navy, its head a member of the President's Cabinet, in full and undivided control of a comprehensive aero coast defense system, which our peculiar geographical position and extended coast line render imperative; of a system of aviation training schools, located in each of the principal geographical divisions of the country; and of the civil and commercial avenues of aeronautic activities.

THE AERIAL COAST PATROL

The plan to establish an Aerial Coast Patrol consisting of a chain of aviation stations at every fifty or one hundred miles along our coasts is developing fast. The inexorable logic of actual events is working powerfully for it. The public interest in the plan has been great and the co-operation of the Commission has been sought by communities and groups of individuals throughout the country who



In the upper picture: the air cruiser of the American Transoceanic Company, equipped with two 160 h.p. Curtiss motors



wish to establish stations in their localities. Portland, Me., at one end of our Atlantic coast line, has raised the money for a station of the Patrol; Port Arthur, Tex., is raising the funds for another, and intermediate communities are ready to do their part. Congress is interested in the plan and a bill has been introduced in both Senate and House providing for an appropriation of \$1,500,000 for establishing units of the Aerial Coast Patrols under the auspices of the Navy and in connection with the Naval Militia and Naval Reserves, but owing to the shortness of time and the pressure of legislative business, Congress did not act upon it during the past session.

We are assured, however, that inasmuch as the measure is intended essentially to train civilians in the use of aeroplanes for coast defense, and, owing to the shortage of naval aviators that such a reserve of trained civilians is of vital importance, the bill is likely to be passed, and the plans to go into effect during the coming session of Congress.

At the time the plan for the Aerial Coast Patrol was proposed a year and a half ago, international conditions were much different and no submarines had as yet crossed the Atlantic, and the possibility of a submarine crossing the Atlantic was denied by most people, including some high naval authorities. In outlining the plans of the Aerial Coast Patrol we decided, therefore, on a bare skeleton organization, allowing only one aeroplane in connection with each unit.

The revolutionary changes that have taken place make it necessary to extend the plan, increasing the number of aeroplanes in each unit to four.

Aerial Coast Patrol Unit No. 1, organized by F. Trubee Davison, took the first step in putting into effect the plan to use four aeroplanes instead of one. This unit did valuable work in connection with the mosquito fleet maneuvers, demonstrating conclusively that the Aerial Coast Patrol will become a most practical and valuable organization, enabling civilians to prepare themselves to participate in the serious work of national defense and meeting the new conditions created by submarine and aerial warfare, to cope with which this country is sorely unprepared.

The members of Volunteer Aerial Coast Patrol Unit No.



Uncle Sam is now transporting his mail to Pershing by military aeroplane. The 120-mile trip is made in one hour and six minutes

1, which has already earned for itself the distinction of having participated in the first naval maneuvers held under most adverse conditions, locating the ships of the attacking fleet as well as submerged mines, are as follows: F. T. Davison, Robert A. Lovett, John Vorys, John Farwell, 3d, Albert Ditman, Wellesley Laud Brown, Artemus L. Gates, Erl Gould, Allan Ames, C. D. Wiman, A. D. Sturtevant and H. P. Davison, Jr.

The members of this unit have gone back to Yale University and are continuing their training while attending the university. Their flights between Port Washington, L. I., and New London, Conn., have had a most convincing effect on the people who remember that the members of this unit only started to fly July 8 last. The unit is now making New London its base, the plan being to maneuver with submarines and other naval vessels during the winter and spring while the members of the unit are at Yale University. By next spring this unit is to be complete



A Burgess-Curtiss flying boat. Our national defenses should include a host of hydroaeroplanes, constantly engaged in patrolling our coast line

Narragansett Pier, photographed from a flying boat

and equipped with the very latest equipment obtainable, ready to meet any emergency.

I want especially to commend the efficiency and the patriotic spirit of the members of this unit. They have set an example which hundreds of other red-blooded American young men will undoubtedly follow during the coming season. Inasmuch as little is known about naval aeronautics in this country, their work is the work of the pioneer. Instead of being dismayed to find that neither the Army nor the Navy could supply them with textbooks and information to guide them in their work,

they set out to experiment and learn for themselves, while inviting the co-operation and advice of the authorities. In the near future, therefore, they will probably be in a position to make valuable contributions in data regarding reconnoitering at sea, map making and photographing from the air, locating submarines and mines of different color at different depths and under various weather conditions, etc.

I cannot emphasize too strongly the necessity of putting into effect this plan for the Aerial Coast Patrol as soon as possible. The present international situation is critical and no one can foresee what may happen. Present-day warfare is fraught with unpleasant surprises to combat which requires the combined resources of a nation. There are many phases of the important work of national defense in which civilians cannot participate, but the Aerial Coast Patrol system is one in which civilians can take part

and create a valuable scheme of coast defense, training themselves so that

they may be available for service under the direction of the Navy or Army under almost any conditions. Recent occurrences off Nantucket have brought this country squarely face to face with the question: "What would we do to-day if antagonized by a power possessing a fleet of fighting machines like the U-53?" That one power does possess such dangerous fighting machines, capable of crossing the Atlantic at will, is now a fact evident to every one. And there is no doubt

(Continued on page 49)

Motor Boats in the Movies

Together With Hydroaeroplanes and Mrs. Vernon Castle They Play One of the Most Important Parts in the New Film Play "Patria"



Of course, you know from the first flicker of any film that someone is going to rescue the heroine, so it's the manner of rescue that counts. In "Patria" with Mrs. Vernon Castle in the titular role, she is saved from the chilly depths by a machine no less modern than a



hydroaeroplane driven by Captain Parr (Milton Sills). This you will see in the top picture, and it is well to mark the look of pleasure on the captain's face. Perhaps he, too, can dance!

Not to be outdone in this rescue business, Patria finds opportunity in the course of the film to commandeer a high-powered motor boat, chase a Japanese freighter which has Captain Parr and all manner of wealth aboard, and rescue him and it from captivity in a most thrilling and convincing way. And in the lower left-hand picture you see Captain Parr handsomely bidding farewell to the mech. just before he sets off in his flying boat to effect the rescue portrayed in the first picture.

Real water! Real motor boats!! Real hydroaeroplanes!!!

Challenge for the 1917 A.P.B.A. Gold Cup Races

The Lake George Regatta Association Sends Challenge to the Minneapolis Boat Association and Names Hawk Eye II as Its Representative

The East and the West will meet in 1917 to decide the motor boat speed supremacy of the world.

It will be remembered that the Gold Cup has been gradually traveling farther west each year since the races at Manhasset Bay in 1915. The first jump was to Detroit, and last summer on account of the performance of Miss Minneapolis, representing the Minneapolis Boat Association, the cup was carried to Minneapolis, Minn.

The races of 1917 will be held at that city, probably early in September. The Deed of Gift provides that the first race shall not be held within six months of the receipt of the challenge, and that the match shall consist of three heats, each of which shall not be less than twenty nor more than forty nautical miles in length. The course must be not less than five nautical miles for each round.

The possibilities for an excellent course on Lake Minnetonka are of the best. One could be arranged of the proper length, in deep water, free from bad turns and giving the spectators an unobstructed view of the boats at all times.

Hawk Eye II, the boat which the challenging club has named as its representative, is owned by Commodore A. L. Judson, president of the A. P. B. A. The exact details of its construction and power plant cannot be announced at the present moment, but suffice it to say that Hawk Eye II will be very fast.



(Above) J. Lee Barrett, Secretary of the Lake George Regatta Association, and (to the right) Fleet Surgeon Crevier and Treasurer W. E. Metzger, of the same organization which defended the Gold Cup last summer



Ex-President Herman T. Keener, the one person who is largely responsible for the sound basis on which the A. P. B. A. now stands

The International Team, Messrs. Bickell and Simpson, owners of Peter Pan VII



(Right) Commodore A. L. Judson, the racing president of the A. P. B. A., whose boat Hawk Eye II has already beaten in the 1917 Gold Cup Races

(Above) George C. Keener, of Philadelphia, the watchman of the A. P. B. A.

Pattina, a 60-Foot Motor Cruiser Flying the British Ensign, Maintains a 25-Knot Speed for Eleven Continuous Hours in Zero Weather on Long Island Sound

(Above) George C. Krusen,
of Philadelphia, the watch-
dog of the treasury

hours of darkness. Even so, the pace was so great that it was no easy matter to dodge buoys and such. During the daylight interval there was little of interest in the run. An engine speed of 1,180 r.p.m. was maintained, and as



Detroit Power Boat Association (left) Fleet Surgeon (right) Fleet Surgeon Crevier and Treasurer W. E. Metzger, of the same organization which defended the Gold Cup last summer



exerted to its full capacity, as it was not desired to stretch it unduly.

The long distance trial came on December 11, the start being made long before daylight on a bitter cold morning. A course was laid out between Execution Light and Stratford, and Pattina nearly wore a groove in the Sound, plowing back and forth over the same stretch. In order to avoid striking floating objects a searchlight was rigged up for the

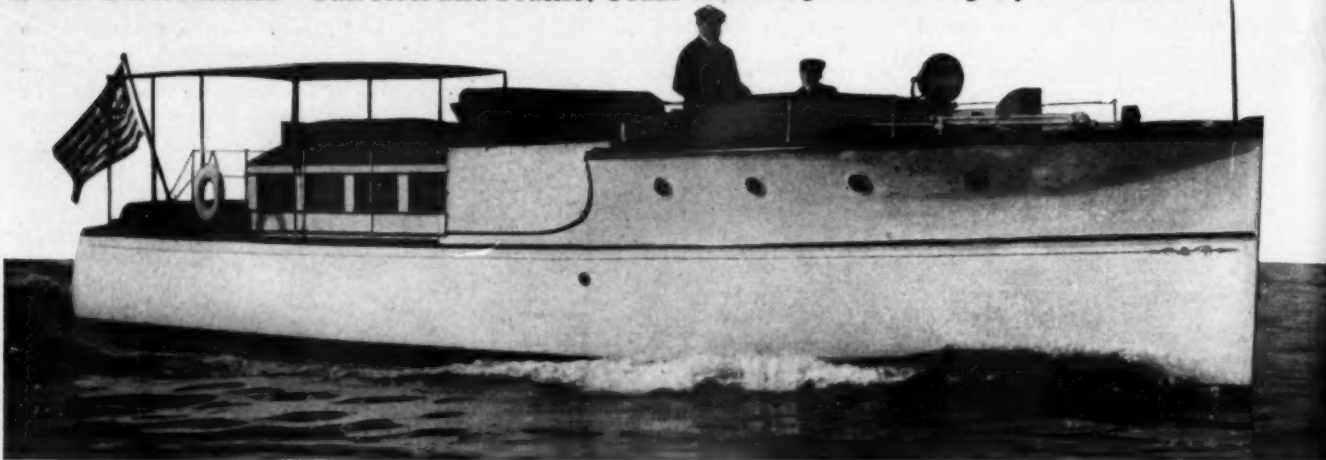
the trial wore on, on account of the boat lightening, it was necessary to keep throttling down so as not to exceed

At the sixth hour, lint and other foreign
(Continued on page 68)

sixth hour, lint and oth
(Continued on page 68)

Alegria, a Trim 41-Footer

A Staunch Raised-Deck Cruiser of Attractive Lines Which is Used in the Neighborhood of Mt. Desert Island—Oak Keel and Frame, Cedar Planking and Mahogany Trim Used



Copyright by Pearce

Alegria is a 41-foot raised-deck, trunk-cabin cruiser owned by John E. Zimmerman, of Philadelphia, and used by him off the coast of Maine

ALEGRIA is a handsome new raised-deck trunk-cabin cruiser owned by John E. Zimmerman, of Philadelphia, Pa., designed for him by Bowes & Mower, of the same city, and built by John C. Vanderslice, of Camden, N. J. She is 41 feet 6 inches in overall length, by a beam of 9 feet 9 inches and 3 1/4-foot draft. In specifying his needs Mr. Zimmerman asked especially for seaworthiness, and he informs us that Alegria has fulfilled all his requirements and has proved herself a good, comfortable sea boat for the tossing waters which prevail around Mt. Desert Island. Her average speed is about 11 miles per hour, and she made the run from Camden, N. J., where she was built, to her owner's summer home at Northeast Harbor, Me., in five days' running time.

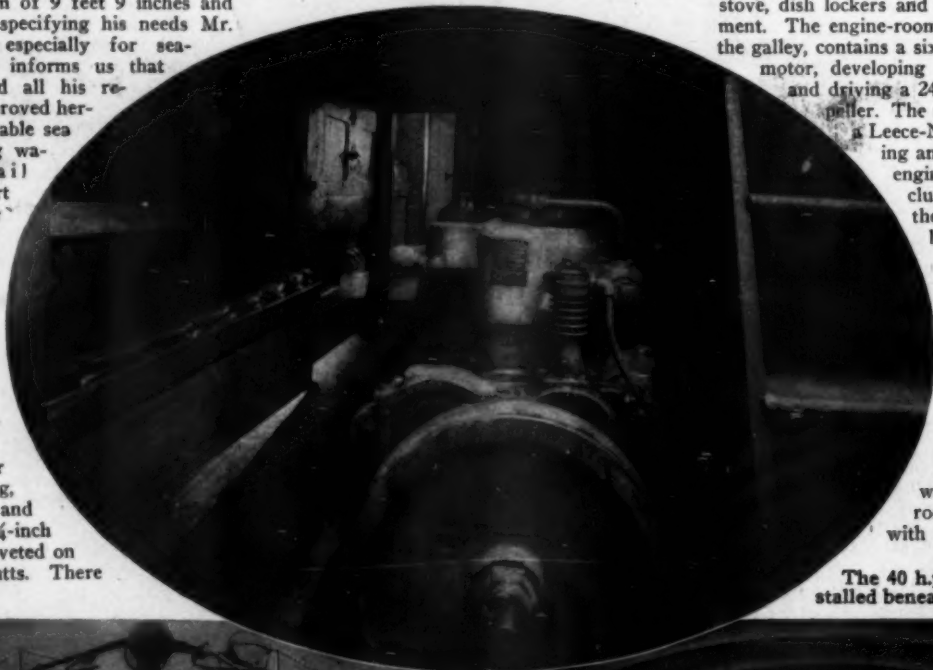
The boat is constructed with her keel, stem, shaft log, frames, etc., of oak, and with planking of 3/4-inch white cedar, triple riveted on both sides of the butts. There

is a double-thickness water-tight bulkhead forward and another bulkhead at the lazarette. The exterior trim is in mahogany, and the interior is of the Colonial style of paneled white enamel with bright mahogany trimmings wherever wear is liable to occur, such as

corners, return pieces around the bottom of the transoms, etc.

The main cabin is aft, and is fitted with two extension berths, table, lockers to port and starboard, etc. Forward, on the starboard side, is the galley, which is arranged with icebox, stove, dish lockers and the other usual equipment. The engine-room, which is forward of the galley, contains a six-cylinder Loew-Victor motor, developing 40 h.p. at 800 r.p.m., and driving a 24 by 24-inch Hyde propeller. The motor is equipped with a Leece-Neville system of starting and lighting. Additional engine-room equipment includes a pipe berth for the engineer and a work bench. A toilet room is located on the port aft side of the engine room and has an entering door from the main saloon. In addition to the usual toilet equipment, a linen locker is placed in this compartment. The owner's stateroom is forward of the engine-room. It is furnished with two single berths.

The 40 h.p. Loew-Victor is installed beneath the central cockpit



Alegria, 41 1/2 feet in length, is arranged with engine-room beneath the central cockpit, stateroom forward, and main cabin aft



The interior is finished in the Colonial style of white enameled paneling with bright mahogany trim where subject to wear

A New World Cruiser

Sabalo, the 140-Foot Motor Yacht Owned by W. Gasoline and Has a Stores Capacity Sufficient Three 300 H.P. Speedway Motors Give a Speed of One of Her Principal

Earl Dodge, Carries 9,000 Gallons of for Two Months of Cruising—Her 17 Miles — Absolute Seaworthiness Features

Photographs copyright by Edwin Levick



Sabalo is of the true destroyer type, and is similar in appearance to Tarantula, which was also designed by Tams, Lemoine & Crane

SABALO, the new triple-screw motor yacht belonging to W. Earl Dodge, of New York City, is the largest in point of tonnage which has yet been built in this country. She measures 140 feet long by 20 feet beam and 7 feet draft, and she is powered with three six-cylinder Speedway motors of 11 by 12-inch bore and stroke, developing 300 h.p. each. Tams, Lemoine & Crane, of New York City, were her designers, and she was built under their supervision by the Geo. Lawley & Son Corp., of Neponset, Mass.

Not long after her completion Sabalo made a remarkable run to Miami, doing the distance in seventy hours. Mr. Dodge joined the vessel in Florida and is now spending the winter in extensive cruising through the West Indies, the Windward Islands and in South American waters. As her gasoline tank capacity is 9,000 gallons, Sabalo is enabled to cruise across the Atlantic, making a stop at the Azores for fuel, and proceeding thence to the Mediterranean. Although she is fast, having a speed of 17 miles, nothing has been skimped to attain speed, and she is, in fact, heavily built with a view to making her absolutely seaworthy.

In her lines she



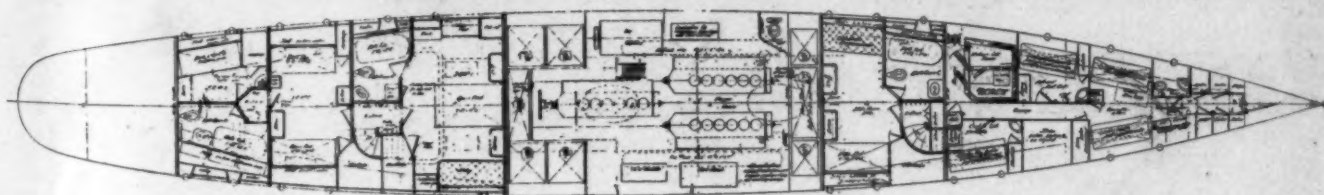
In addition to the three motors in her main power plant, she carries two electric sets, refrigerating machine, and air and bilge auxiliaries

closely resembles a torpedo boat destroyer, and the type of construction used in this class of naval vessels has been generally carried out in this yacht, enhancing her strength and sea-going qualities. Sabalo also bears a marked resemblance to Tarantula, the 128-footer evolved by the same designers a few years ago for W. K. Vanderbilt. Tarantula has been voted a success wherever she has cruised, and there is no doubt that Sabalo's merits will meet with the same general recognition.

The new yacht has a plumb stern and raised fore-castle deck, and in construction and detail is considered to be the latest word in naval architecture. All her frames and plating are of the very best tested and galvanized material. The decks are of white pine and all the deck trim is in teak.

The owner's quarters are of generous dimensions, taking about 40 feet in the after part of the vessel and 15 feet forward. The dining saloon measures 10 by 14 feet, the after deck-house is 18 by 11 feet and the after deck 17 by 14 feet. At the end of the after deck-

The galley on the saloon deck is connected by dumbwaiter with the wholesale and retail refrigerating rooms below



The owner's quarters below are allowed 40 feet of fore and aft length, and the crew's quarters are arranged in double deck formation

house is a large and comfortable shelter seat.

From the after deck-house one goes below into a small vestibule, forward of which is an owner's stateroom with two large skylights over. This room has a large brass bedstead, sofa seat, bureau, chiffonier, desk, clothes closets as well as other furnishings. In direct communication with it on the port side is the owner's bathroom, and to starboard is a huge wardrobe.

Aft of this is another double room which is the full width of the vessel (in fact, all the rooms in the owner's quarters extend from beam to beam) in which there are two brass beds, bureau, desk and wardrobe. Then comes another bathroom on the starboard side aft with a single stateroom opposite it. The latter is furnished with berth, bureau and lavatory, and is provided with a portable pressing table over the berth. The ventilation has been carefully worked out throughout the vessel, and in every room there is a skylight.

Forward on deck are the galley and pantry, the latter communicating with the dining saloon. A feature of the deck equipment is a toilet located on the starboard side, abaft the galley. A stairway down from the saloon leads into the owner's forward stateroom, which is equipped with brass bed, berth, etc., and is similar in arrangement to the No. 1 stateroom aft, there being a bathroom in direct communication as well as a wardrobe.

One of the most attractive features of Sabalo is the splendid crew's quarters. She is the only motor-driven vessel of sufficient size to have double deck crew's accommodations. On the main deck are the captain's and engineer's rooms, the officers' bathroom and shower, as well as the officers' messroom and an abundance of locker space. Below is the steward's room, the mate's and assistant engineer's room and the quarters for the men in the crew. Forward of the steward's room is a storage space and forward of it the linen locker, while opposite the steward's compartment is the cold storage section. This is divided into two parts for wholesale and retail storage, and is kept cold by ice-making tanks.



The large storage and refrigerator capacity of Sabalo greatly increases her cruising radius, and the water tank capacity will permit the boat to go to sea and remain there for extended ocean work—in fact, stores can be carried for a couple of months' cruising.

A stairway leads from the dining saloon down to the forward stateroom.

The engine-room has direct ventilation throughout and over 10 feet headroom. In addition to the three

main motors there are two electric plants and special motors for the air compressor, bilge pumps and other auxiliaries. A one-ton refrigerating machine is included in the equipment, and the plumbing throughout the boat is, of course, of the very latest type.

Of the three Speedway motors comprising the main power plant, one was exhibited at the California Exposition and another at last year's motor boat show. Mr. Dodge's idea in having a triple-screw outfit was that when he desired speed for short runs he could make use of all the power, while for offshore cruising two could be used, and for just putting around, watching the races, etc., only one would be necessary.

The small-boat equipment comprises a 21-foot high-speed tender, a 16-foot motor dinghy for the crew, and a 22-foot Seabright dory for landing in the surf.

Tarantula, which may be considered the prototype of Sabalo, is 128 feet in length, by a beam of 19 feet 4 inches, and a draft of 8½ feet. She also is of steel construction, and her exterior and interior finish work is in teak and mahogany. She is powered with two six-cylinder 300 h.p., Speedway motors, and her speed on her trial

trips three years ago

Sabalo's general interior finish and architectural scheme is Colonial.

was about 14 knots. Sabalo, although considerably longer and of much heavier construction, attains a better speed than this

with only one additional motor, and the difference may be put to the advances made in design and power plants since Tarantula was launched.



The deck accommodations are almost equal to those of a coasting steamer.



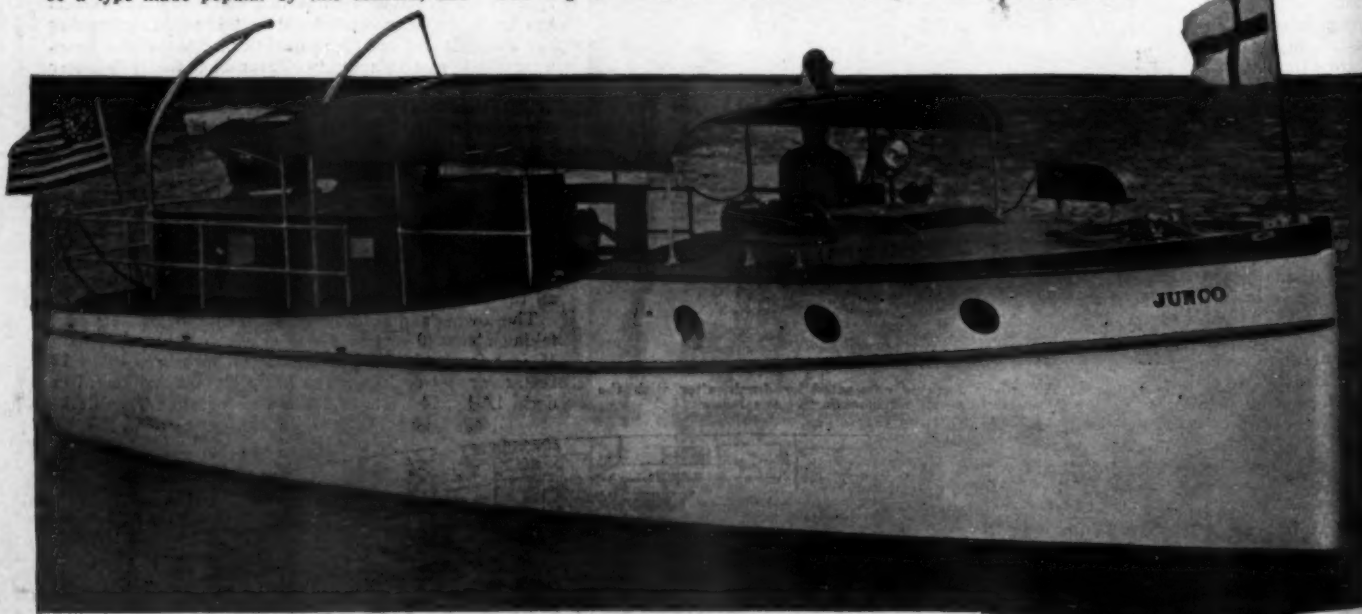
An "Under-Forty" Cruiser With Ample Accommodations

JUNCO is a 39½-foot cruiser built by the Racine Boat Co., of Racine, Wis., for C. K. Benedict, of Sawano, Tenn., and used by him on the Great Lakes during the summer months. She is a handy little cruiser of a type made popular by this concern, and

with her 40-50 h.p. four-cylinder Regal motor easily attains a speed of 12 miles per hour.

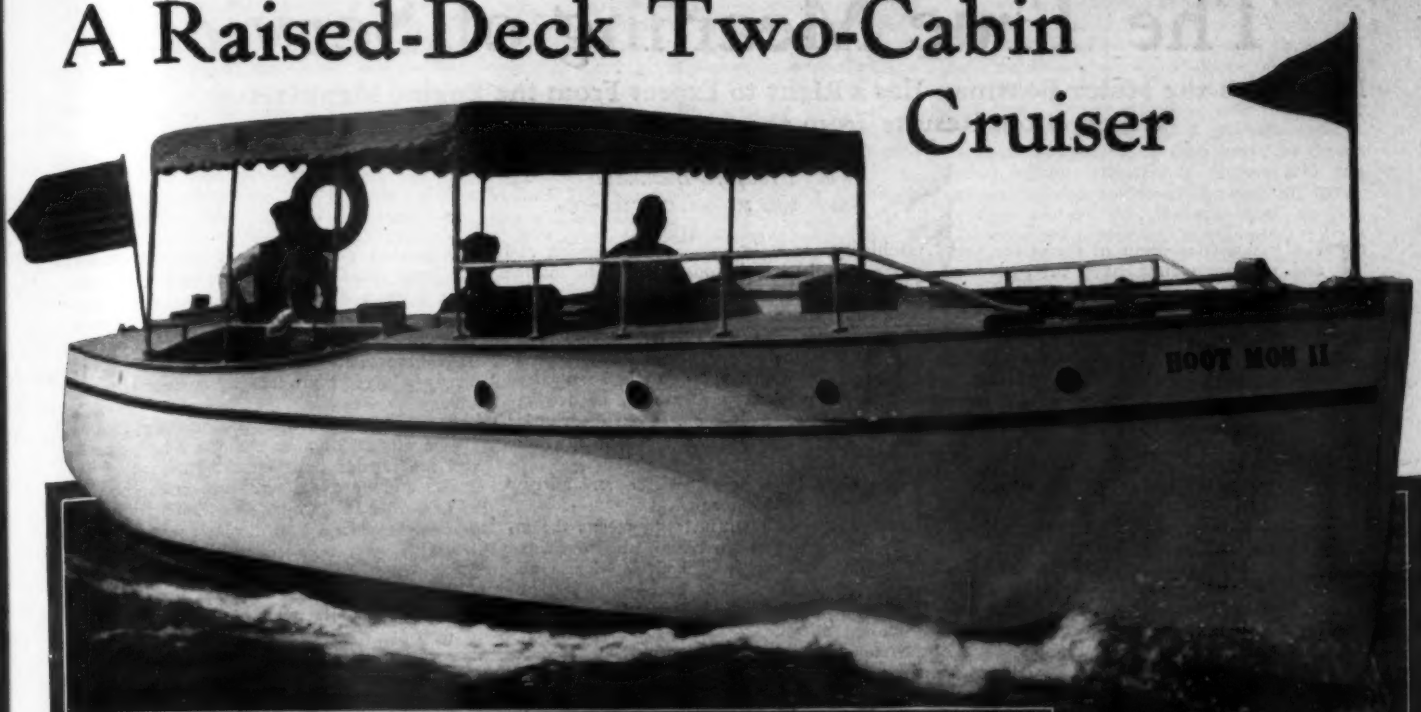
She is attractively arranged with two staterooms and a large central cockpit, and she has sleeping accommodations for ten persons. The engine is installed beneath the cockpit

and is controlled from it. An awning is provided amidships, and the dinghy is swung over the cabin trunk aft. Junco's beam is 9½ feet and her draft 2½ feet. She is fitted with a searchlight and full electrical equipment.



Junco is 39 feet 6 inches in length by 9½ feet beam. Powered with a 40-50 h.p. Regal, she makes about 12 m.p.h. She is a product of the Racine Boat Co.

A Raised-Deck Two-Cabin Cruiser



Hoot Mon II, owned by William Watson, Jr., of San Mateo, Cal., was designed by Deed and built by the owner



The three-cylinder Campbell engine is placed under a housing in the cockpit

Facts and Figures of Hoot Mon II

Length	34' 2"
Beam	9'
Draft	3'
Motor	Campbell
Capacity	15 h.p.
Speed	8½ m.p.h.
Designer.....	William J. Deed, Jr.
Owner.....	William Watson, Jr.

HOOT MON II, shown in the accompanying illustrations, is a Pacific Coast craft designed by William J. Deed, Jr., of Boston, Mass., and built by the joint efforts of the owner, William Watson, Jr., of San Mateo, Cal., his father, and his brother.

The boat is a raised-deck, two-cabin cruiser, 34 feet 2 inches in overall length by 9 feet beam and 3 feet draft. She is powered with a three-cylinder 15 h.p. Campbell engine turning a 22x28-inch Hyde wheel at 415 r.p.m., and giving a speed of 8½ miles an hour.

She is laid down with the chain locker in the fore-peak, followed by the toilet, with the galley and main cabin coming aft. The galley is equipped with an alcohol stove, sink, running water and plenty of storage space. In the main cabin on the port side is a large clothes locker, while opposite it is the tool locker. A drop-leaf table occupies the center of the cabin and on either side of it are extension transom berths. The companionway entrance is on the starboard side. The finish of this compartment is in mahogany and white enamel.

The cockpit is amidships, and in it, covered by a hood, is the engine. Any leakage from the two 20-gallon gasoline tanks which are placed in the cockpit will drain outboard.

The last but not the least important feature of Hoot Mon II is the after cabin, which provides very comfortable sleeping accommodations for two persons.



The main cabin provides dining and sleeping accommodations

The True Meaning of Service

How Much the Motor Boatman Has a Right to Expect From the Engine Manufacturer—Trouble Which Often Results from the Owner's Failure to Give Real Facts

By Bradford Burnham

Marine Sales Manager, Gray Motor Co.

THE tremendous vogue of the motor boat and the automobile have brought into general usage a highly specialized definition of the common word "service," which to most persons conveys a vague notion of some sort of future attention which the dealer sells with the motor. The ideas entertained as to just what this attention consists of are confused and conflicting. There are some who imagine that service means the free correction by the manufacturer of abuses committed by the owner or unskilled engineer; the supplying gratis of repair work and overhauling so long as the engine sticks together; or a sort of blanket guarantee by the manufacturer that the owner will receive the services of an expert mechanic free of charge whenever necessary, and that no matter what may occur the owner will suffer no loss. In short, to many, service means something for nothing.

No manufacturer could make promises of this sort and live. It would be exactly the same as if a man should sell a horse and promise to keep the animal in good working condition no matter whether the owner hit it over the head or refused to give it sufficient food. Occasionally, of course, a product containing a fault of some kind is unintentionally turned out by the most conscientious and honest house in the world. A flaw in the casting, for example, may creep in and somehow escape detection in spite of the usual tests. Any reputable house will be found not only willing but anxious to make good imperfections of this sort free of charge. But breakdowns due solely to unintelligent handling and accidents traceable to exceptional strains and conditions which the engine was never intended to receive are far more frequent, and are the cause of many a disgruntled owner. In all kinds of

machinery a certain amount of attention and care is required in its operation. The marine engine is no exception to this rule; neither is it any more exacting than many other pieces of machinery—harvesters, for instance. In all cases there must be a compliance to certain laws. Worn parts should be repaired or replaced at once. Oil must be used where there is friction, and so on. Your disgruntled owner is sometimes quite ignorant of these fundamentals.

Just what, then, does this new and narrow definition of service mean?

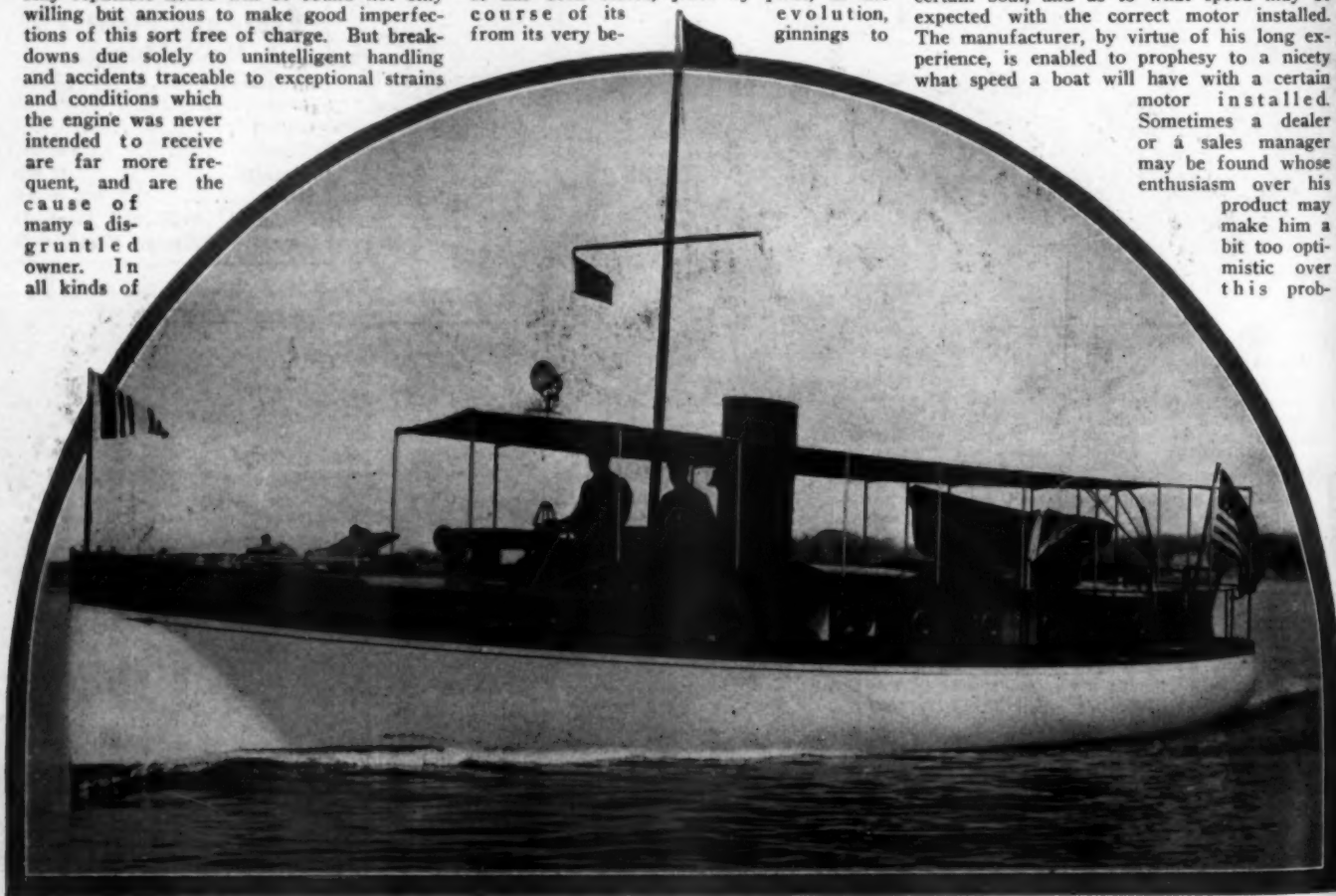
Service, to the manufacturer, means the intelligent and expert handling with promptness of troubles arising from both legitimate and illegitimate sources. The high-grade automobile manufacturer has a far simpler task in providing adequately such service than does the marine motor maker. In the first place, a car is finished ready to perform its duties the moment it leaves the plant. The carburetor is adjusted to suit the average load, the electric starter is properly wired to storage battery and lamps, and last but not least, each car is exactly the same (perhaps excepting the color of the paint) as every other car of that particular model.

Now, consider the case of the marine motor manufacturer. John Brown, for instance, buys an engine. The engine is exactly like all its brothers and sisters of that particular model. It has been tested, piece by piece, in the course of its evolution, from its very be-

ginnings to the finished product. That finished product has been submitted to severe and exhaustive tests with a dynamometer, has been rigidly inspected by inspectors trained to examine it from the buyer's point of view, and when it leaves the floor of the shipping room, is as nearly a perfect product as is humanly possible.

But what does John do with his engine? He installs a 25 h.p. machine in a boat that he and his friends built in a barn back of his house, and he expects to surpass the records of Disturber IV or Miss Minneapolis. The engine is placed in a boat displacing six tons and drives it only nine miles per hour. Why, Great Scott! With his automobile he gets 40 miles an hour, using a motor of the same bore and stroke. Quite possibly the marine engine is developing a considerably greater horsepower at a certain number of revolutions, but Professor Brown is sublimely unaware of this fact. He is disappointed—and sore.

To prevent such all-too-frequent occurrences education is necessary. This means that with the marine motor manufacturer service begins before the motor is sold. While it is probably true that most owners of motor craft are better acquainted with the mechanical construction and operation of gasoline motors than are owners of automobiles, there exists a surprising ignorance of what is just the right motor, as to power, speed and weight for a certain boat, and as to what speed may be expected with the correct motor installed. The manufacturer, by virtue of his long experience, is enabled to prophesy to a nicety what speed a boat will have with a certain motor installed. Sometimes a dealer or a sales manager may be found whose enthusiasm over his product may make him a bit too optimistic over this prob-



In a cruiser like this, a light, high-speed, two-cycle or automobile motor won't do. For the best results a motor must be fitted for the service it is intended. The manufacturer is best able to tell you what kind of a power plant you need for your particular case, so don't hesitate to confer with him when you have in mind a change of motors or a new engine

able speed, but this is not usually so with the older and more experienced firms, who have learned that it is far better to have a buyer pleasantly surprised than sorely disappointed. Generally it will be found that the manufacturer is more conservative in predicting speed than is the local dealer.

Most buyers, however, ask the manufacturer to go further and guarantee speed. No responsible engine builder will do this. Every responsible engine builder guarantees the brake horsepower of his engine, and the buyer will find that if he trusts the manufacturer's predictions, provided he has gone to a manufacturer whose integrity is unquestioned, the results will justify his confidence.

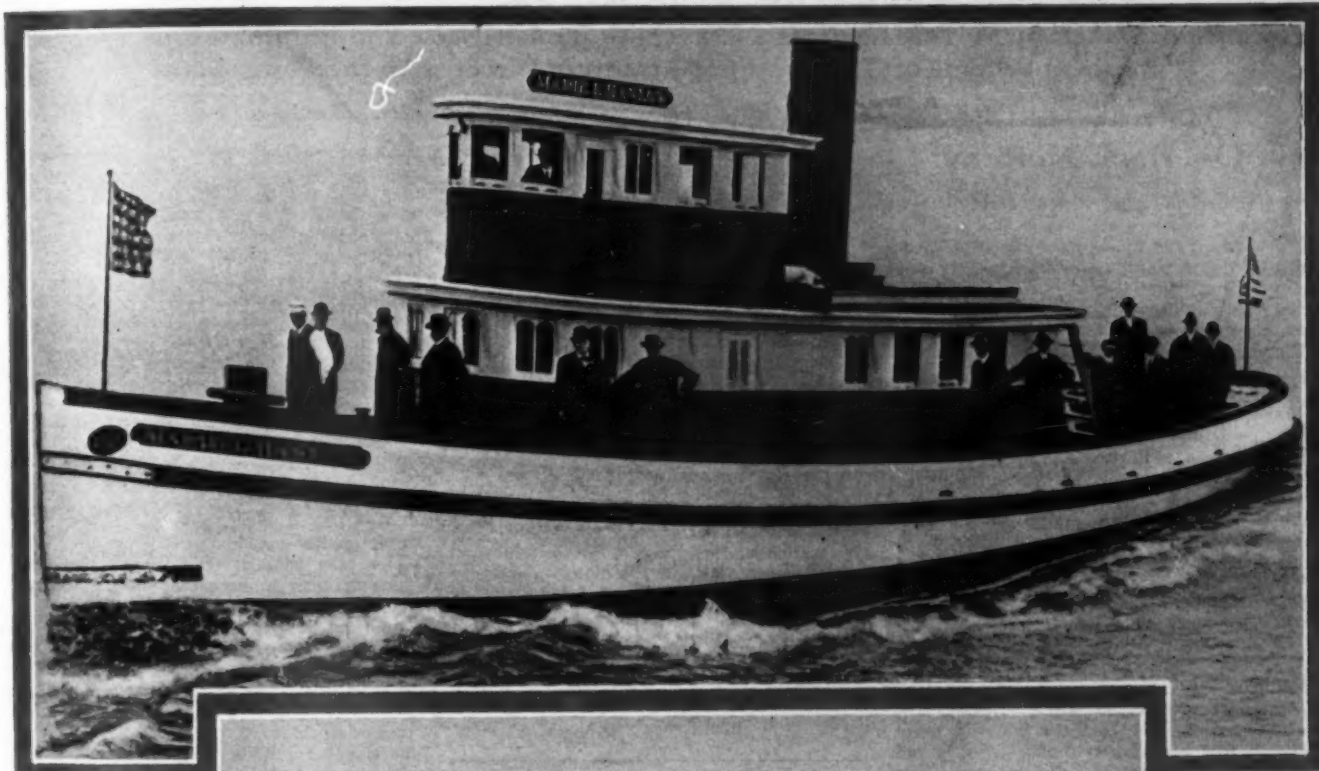
This matter of placing the right engine in the right boat, this correlation between hull and power plant, is one of prime importance.

who can persuade this oft-defeated owner that the remedy lies in a new motor of just a little more power usually makes a sale. There is nothing more gratifying to a salesman or a dealer than conservatively to prophesy a speed of 3 miles per hour more by a change of power plant, and to receive an enthusiastic letter some months later stating that the predicted 3 miles additional speed had been obtained. He has rendered the owner the truest kind of service.

But often the increase of power made is much too great to produce the best of results. The increase of speed is entirely disproportionate to the increase of power. Once in a while it is even a negative quantity, and the boat would actually move faster through the water if it had an engine of less power propelling it. A light cruiser, 25 feet long, is

facturers are rendering constantly. The buyer will usually find later on that such service has been of incalculable value to him, though at the time it is given he is all too likely to be suspicious and lacking in confidence.

Having sold the motor, it is to the interest of the manufacturer that it be maintained in the best of condition, so that it may be always found reliable and able to operate with the greatest efficiency. Every far-sighted manufacturer realizes this, knowing that his best advertisement is his own product when it gives perfect satisfaction. For this purpose he maintains a specialized service department with trained men in charge. This service department should keep on file proper records of each engine, including whatever changes may be made which effect the original construction of that engine. This makes it possible to sup-



For commercial work the service is most exacting, yet there are many internal combustion motors on the market capable of doing the work and doing it better than a steam plant would. However, if the type of motor one chooses is not correct, failure will surely result.



For high-speed runabout service, one must have a fast-turning light motor. One could use twice or three times as much power in another type of motor, and yet not get the speed or service which the proper machine would give.

No one is better equipped to obtain this than is the manufacturer of motors. For, after all, refinements of hull design and fineness of hull construction avail one nothing if the engine, the heart of the boat, is not suited to the conditions under which it is called upon to operate. According to an eminent designer of hulls, seventy-five per cent. of a craft's success, whether of the racing, cruiser, or runabout type, must be credited to the motor rather than to the hull.

It is surprising how frequently a good boat is fitted with a good engine, but of the wrong size or type. Very often an engine with just a little additional power over the one then installed will produce a whole lot greater speed. Such a condition of slight underpower is particularly disappointing to the owner whose neighbor is invariably crossing the line just a wee bit in front of him. The sales manager

powered with a 10 h.p. motor of medium-duty type which quietly and unobtrusively sends the little boat smoothly along at the very fair speed of 12 miles per hour. The owner is not contented with well enough, however, so he installs a 35 h.p., high-speed motor, with what results?—excessive vibration, considerable noise, a cabin full of machinery, and an additional 2 miles per hour speed! No really responsible manufacturer or agent would have recommended such a combination, but would have shown the ambitious owner the design of a hull with which he could obtain 25 m.p.h. with this same 35 h.p. machine. Overpowered boats are exceedingly extravagant and unsatisfactory propositions.

Such service—the recommendation of an engine so exactly suited to the boat that maximum efficiency and economy will be obtained—the sales forces of the larger marine manu-

ply the owner's wants quickly and accurately. To facilitate matters in this respect the manufacturer should be able to supply a large sectional drawing of each engine with the various parts plainly indicated thereon, the factory names of parts given, as well as the prices, and, in general, the proper course to follow when ordering.

The effectiveness of such a service department depends in large part upon the owner's cooperation. When an engine changes hands the manufacturer should be notified; when a motor is altered in any way the makers should receive full information upon the change. If an engine is removed from one boat and installed in another the engine maker should be advised of the fact, as well as to the size and type of boat in which the engine has been placed. The supplying of such information is

(Continued on page 65)



The Clean and Quiet Boat

Precautions Taken by MoToR Boating's Readers to Banish Noise and Eliminate Dirt From the Nautical Scheme of Things—First Attention Directed to the Power Plant

THE PRIZE CONTEST—Answers to the First Question in the December Issue

Overlook Nothing

(The Prize-Winning Answer)

TO keep the boat bottom clean, I have found after using nearly all kinds of bottom paint, that copper is the best, and also has the greatest endurance.

For the top sides I always use a good marine paint. A preparation of lead and oil will not stand up, nor will it wash well, as the dirt seems to enter into the paint, while it also tends to get chalky and flaky.

For your varnish work procure the best varnish possible, as the best is none too good. Give everything two coats before launching in the spring, as it takes a good thick coat to last a season. It is very disagreeable to have to revarnish while in the water, especially if the boat is small and crowded and in frequent use. However, if the varnish shows signs of wear, by all means give it a coat, because if the weather gets into the wood it is difficult to get it back to its original condition, oak being especially a bad offender.

For the cockpit and cabin floor, if paint does not suit you, linoleum is very good and easy to keep clean. Make a paper pattern of the floor and cut out the linoleum to fit exactly, then nail quarter-round strips around the sides, the thickness of the linoleum above the floor, and slip it under these to keep it in place and still make it possible to lift out when desired. If there are any hatches in the floor, cut the linoleum to size and tack it around the edges with brass-headed tacks, or screw a double frame of sheet brass around. You can then lift up hatch and linoleum together. If you desire something a little warmer looking for the cabin, I have found that cocoanut matting will wash more easily and dry faster than anything else.

To keep the bilge clean, put a pan under the engine to catch all the oil and grease; also put a small pan that can be easily removed for emptying under the carbureter to catch the gasoline which drips when priming, etc. If you are afraid of backfire, solder a piece of copper wire gauze over the top of the pan, as this will prevent the flame from reaching the gasoline. To keep the bilge free from water, by all means install a power bilge pump, connecting this up to your circulating pump, so that in case of a breakdown on either pump you have the other to fall back on. Put a pan under and as far up the sides of your flywheel as possible.

One experience was sufficient to teach me the value of this. I started up one morning without pumping out the bilge, as I was in a hurry and there did not seem to be much water in her, but the speed of the boat and her sudden heeling as I turned around brought the water under the flywheel. Before I could shut her off everything in reach was soaked, including the battery box, which, although it was protected and high up the side of the boat,

was almost filled. When you are pitching in a seaway it takes very little water to reach the flywheel, and a stoppage under those conditions may be very serious.

If you happen to have on a clean shirt it is very annoying to have to reach into inaccessible and greasy places to turn down a grease cup or oil a bearing. Extend these cups out into the open by screwing on a piece of pipe of the same size as the cup shank.

The noisiest thing on a boat is the engine exhaust. Equip your power plant with a good muffler, and be sure to fit it up to take some of the cooling water, as a little of this is a great silencer. The other engine noises are a question of adjustment and wear; keep everything tight and all gears well greased, as grease is a great deadener of noise as well as an eliminator of wear.

Vibration is really more nerve racking and tiring than noise, and everything should be done to eliminate this as much as possible. If the engine bed is short or too light, blocks fitted in on the sides and fastened to the ribs and planking are a great help; rods secured to the cylinder head bolts and run over to the sides of the boat and fastened will be found to do wonderful work.

Almost everyone has at some time been annoyed by the exhaust gases blowing into the boat. This is particularly trying on a hot day when the wind is just strong enough to blow them ahead at about the same speed as that of the boat.

I solved this problem by installing my muffler in the center of the boat just behind the engine, and running an exhaust pipe out on both sides with a cut-out on each. As the wind is seldom dead astern, I could then use the side that would allow the gases to be blown away.

JOSEPH APPLETON,
Port Washington, Wis.

To Have a Shipshape Boat

TO assure a clean and quiet running boat, I have adopted the following measures pertaining to both the power plant and the equipment:

First, to prevent the motor's throwing oil and grease from the main bearings I have fitted guards of sheet brass, which fasten to the floor on each side of the motor with brass thumb screws and run up over the offending bearing, catching all grease and oil thrown. The thumb screws are used to facilitate the ready removal of the guards for adjusting the main bearings, cleaning the motor, etc. Similar guards were also placed over the friction wheel of the low tension magneto which, owing to its high speed, is an excellent oil thrower.

As the motor is oiled through the gasoline, any drip at the carbureter leaves a film of oil on the floor after the fuel has evaporated. A small drip pan of enameled ware placed under the carbureter solved this. I also discovered that trying to fill a grease cup in a cramped space was a messy job, and resulted in getting almost as much grease on the adjacent parts as was forced into the cup. This was remedied by extending the grease pipes and bringing the cups to a more accessible location. Oil cans, especially the commercial one-gallon kind, were found to spread oil over the floor, so a small sheet metal tank of two gallons' capacity was installed in one of the seats with a small spigot extending through it from which all oil is drawn as needed. Small oil cans are provided with a spring snap holder to prevent upsetting when in rough water.

A clean boat means a shipshape boat, so all tools were assigned a place on a rack and returned there when off duty—quite a contrast to having them sliding around on the floor and in the bilge while the boat is rolling in a seaway. It was also learned that a linoleum-covered floor is more easily wiped up and kept clean than painted floors, and that plain cork linoleum is better in this respect than the more expensive inlaid kind, owing to the porous surface of the latter.

Questions for the April Issue

1. Explain the systematic overhauling of a marine motor of either the single or the multi-cylinder type.

Suggested by W. B. M., Newburgh, N. Y.

2. Describe and illustrate the different kinds of bows and sterns in common use, and tell the merits of each as regards speed, seaworthiness, etc.

Suggested by H. A. R., Coldwater, Mich.

3. Describe how to time the ignition outfit of a marine motor, and discuss the advancing and retarding of a spark and its relation to power and fuel economy.

Suggested by J. F. C., Meriden, Conn.

Rules for the Contest

Answers to the questions, addressed to the Editor of MoToR Boating, 119 West 40th St., New York, must be (a) in our hands on or before February 20, (b) about 500 words long, (c) written on one side of the paper only, (d) accompanied by the senders' names and addresses. (The name will be withheld and initials or a pseudonym used if this is desired.) Questions for the next contest should reach us on or before the 20th of February. The Editor reserves the right to make such changes and corrections in the accepted answers as he may deem necessary.

The prizes are: For each of the best answers to the questions above, any article advertised in the current issue of MoToR Boating, of which the advertised price does not exceed \$25, or a credit of \$25 on any article advertised in the current issue of MoToR Boating which sells for more than that amount. (There are three prizes—one for each question—and a contestant need send in an answer to but one if he does not care to answer all three.)

For each of the questions selected for use in the next contest, any article advertised in this issue of MoToR Boating, of which the advertised price does not exceed \$5, or a credit of \$5 on any article advertised in this issue of MoToR Boating which sells for more than that amount.

When you send in your answers you must state what you will take for a prize should you win one

To assure a quiet running boat I have installed a good muffler, one which uses the circulating water to cool the gases, for steam is a great muffler.

Close watch for lost motion due to wear is kept on all bearings, gears, valve tappets and the plunger pump, for this is a common cause of an unquiet motor. If any is found, it is usually remedied by taking up on the bearings, by removing shims or by filing the caps. The space between the valve stems and valve tappets (on four-cycle motors) is sometimes too great, causing noisy valves. This should be adjusted to about the thickness of a business card and watched for signs of wear.

Last but not least, I have boxed in my motor with an easily removable hood, and a door in front for cranking, which goes far toward making a quiet power plant.

W. ELMER MOTZ, Philadelphia, Pa.

Look First to the Engine

THE item of cleanliness on a motor boat of any type is one that is of considerable importance, for no one can enjoy himself on a boat that is covered with oil and grease. Quietness of operating machinery is dependent to a great extent upon the quality of the motor and accessories, but much can be accomplished along this line with an old-fashioned plant.

Taking up the matter of noise first, it can be said that 90 per cent. of the noise comes from the motor, and the balance from the vibration of other parts of the boat. The greatest of the motor noises can be traced to the exhaust. If a good muffler, a size larger than is usually provided, is installed with as straight a run of piping as possible, the exhaust noise can be reduced to a minimum. The multi-cylinder, four-cycle machines have less exhaust noise than two-cycle engines. If all of the cooling water can be turned into the ex-

haust pipe the sharp bark is much reduced.

Besides the noise of the explosion we have the whirr and snap of the moving parts of the machine, and the sharp sucking noise of the air intake to the carbureter. In the more modern plants with the valves, etc., entirely inclosed, the clatter of the valves is much reduced, but a proper regulation of the adjusting nut on the top of the push rods will help greatly. The adjustment should be such that when the valve is seated and the cam at its lowest point there should only be a clearance between the bottom of the valve stem and the top of the push rod equal to the thickness of a thin calling card. All extra play in igniter parts and pump valves should also be taken up to a point just under the actual contact position. Many heavy-duty motors have automatic intake valves which cause a great deal of noise. The only way to

(Continued on page 65)

Boring the Forgotten Limbers

The Easiest Ways of Getting 'Round a Most Perplexing Problem—A Host of Tools Suggested for the Purpose, Including Augurs, Corner Braces, Ratchets, and the Ubiquitous Red Hot Poker

THE PRIZE CONTEST—Answers to the Second Question in the December Issue

An Extension Boring Rig

(The Prize-Winning Answer)

BORING limber holes after frames, floor timbers and planking are in place is at best a tedious operation, but when the engine bed makes the spaces between the frames beneath it inaccessible, the work becomes extremely difficult.

The sketches on page 24 show a method for reaching under the engine bed which is as simple and satisfactory as any. The augur cannot work loose and come off, and while it can be turned in but one direction, this is really an advantage, for by backing it out while rotating it in the same direction as it went in, the chips will all be cleaned out of the holes.

The rig consists of an assemblage of an augur with threaded shank and threaded rods and sleeves with an end nut fitted to a ratchet wrench. A wrench of this type is almost essential, for although a solid open end, or even a monkey wrench might be used, the work would be extremely slow and tedious.

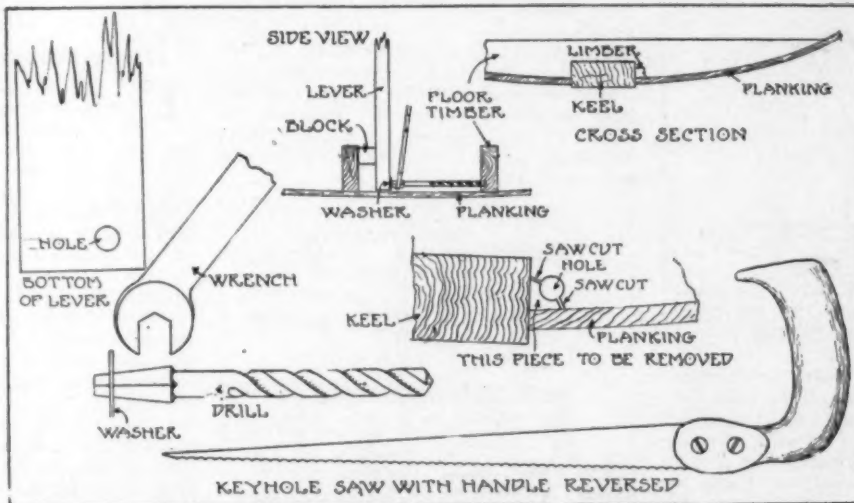
The augur shank and the rods are made of the same diameter and identically threaded, so that the sleeves and nut may be attached to any one. To begin work, start at the first accessible space between the frames. Find out where the floor fastenings are located, so that the augur will not strike them. Screw the nut on the end of the augur, place the wrench in position and start the hole. To give the required pressure, place blocks back of the wrench and use a wood or iron lever, adding more blocks as the boring progresses. A small jack screw might be used in place of the lever. When the hole is bored, run the augur through until only the end of the shank projects, then screw on one of the sleeves D (the nut C having been removed), and then screw a rod B into the other end of the sleeve. Screw the end nut on the outer end of this rod, locate the augur at the desired point and

bore the second hole. Continue in this way, adding sleeves and extra rods until all the holes have been bored. The augur used should have a good lead screw, so that it will feed itself easily into the timbers without undue pressure from the end which might tend to buckle the rods in the case of a long reach through the hull. It is assumed that one can see into, but not reach, the space under the

Burning the Limbers

IT is improbable that more than three or four limbers were overlooked in the building of a boat, so the tools used in cutting these limbers should not necessitate an outlay of any great expense. Rather, the work should be done with such tools as are found in the locker of the ordinary motor boat.

If the boat is hauled out or dry-docked during the winter months it will dry out enough so that holes may be burned with a heated rod through the off-fending floor timbers or engine beds, and these holes may be sawed down to the planking and to the keel with a small compass or keyhole saw that has had the handle removed and turned upwards (see drawing). A saw so arranged will permit sawing down close to the planking without cutting it. While burning holes with a heated rod it is well to keep a pail of damp sand close at hand to quench any blaze should one start,



Pictorial hints and suggestions offered by Mr. Wright

engine bed, so that the augur could be started right each time; otherwise there would be danger of boring too high, or boring into the frames or of hitting fastenings.

The drawings give an idea of the constructional details of the boring rig, but the sizes must be left to the judgment of the individual as applied to his particular hull. If the holes are to be small, the square shank of the augur could be sawed off and the shank threaded as it is, but for a large augur it would be better to have a blacksmith upset the end or else weld on a larger round shank. The rods should be of steel and of the same diameter as the threaded shank of the augur; the sleeve must of course be of smaller diameter than the hole to be bored. The sleeves and nut are best made of cold rolled or machinery steel, say from an old steel pin or piece of shafting; iron pipe would be too liable to split.

H. H. PARKER, Oakland, Cal.

although it is not likely to occur.

Should it be necessary to cut these limbers while the boat is in the water the holes may be drilled as shown in the drawings. A washer is selected that will fit tightly over the end of a drill (about 3/4-inch diameter), the washer preventing the drill from slipping back through the hole in the wooden lever. This hole should be as near the bottom of the lever as is possible, which will bring the hole to be bored down near the planking. Large limbers tend to weaken the framing of the boat.

An ordinary wrench is used to turn the drill while the lever feeds it. When the hole is finished it is sawed out as described above. The holes may be bored with a corner or electrician's brace or a ratchet drill, but it is not likely that the average motor boatman has one.

M. A. WRIGHT, St. Paul, Minn.

Don't Drill at Random

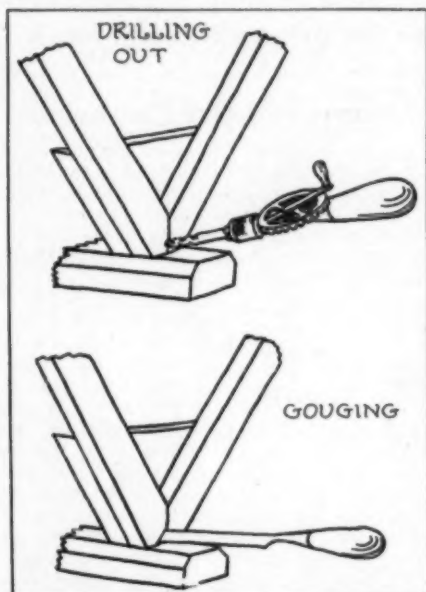
THE simple task of cutting limber holes becomes decidedly irksome if left until the frames are fastened in place.

Numerous K. D. frames are sent out without this little item of work done, and unless the purchaser is familiar with boat building practice and does it before erecting the frame, he will find a fussy job on his hands.

Two distinct operations should be employed, the first being that of drilling out. Since the drill cannot usually be held horizontally the work will have to be done from both the forward and after sides of the floor timbers and frames to avoid drilling into the keel, while yet drilling low enough. This first operation opens up channels in the wood for the second operation of gouging out.

This should be done with a V-gouge of the same size as the limber hole which is desired. The tool may have to be a short one to permit of getting it down to a horizontal position.

The illustrations show the position of the tools where there is plenty of room, as in



Mr. Huestis would employ the two operations of drilling and gouging out

V-bottom construction. Where the floor timbers interfere with free play of the tools, however, a special drill will have to be used, and where a mallet may not be swung, a lever employed to drive in the gouge when it is in place. Care should be taken not to split the adjacent timber when using such a lever, the best preventive being to place a heavy block to receive the pressure.

R. W. HUESTIS,
Springfield, Mass.

The Use of Cement an Alternative Method

WHERE limber holes through the frames or floor members have been omitted, and the planking and flooring are in place, it will be necessary to remove enough of the flooring to obtain access to the parts requiring drains.

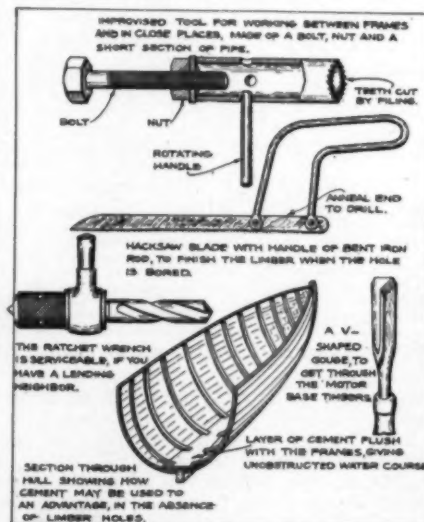
After disfiguration has progressed to this extent the task of providing an unobstructed water course for the bilge or spray had best begin by applying the most suitable boring tool that an inspection of your equipment will reveal.

If you are fortunate enough to have a ratchet wrench it will be useful, for its size and the manner of using it make it convenient for work in the cramped localities.

If no ratchet is available, a short section of steel pipe or tubing of $\frac{1}{4}$ to $\frac{3}{8}$ -inch diameter, provided with cutting teeth filed into one end and several holes drilled into the sides will be useful. A deep-threaded bolt with a nut to fit provides an adjustable feature, to exert pressure for forcing the teeth of this improvised boring tool through the wood. The pipe saw is rotated through the aid of a suitable metal rod, inserted alternately in the holes on the sides of the tube. Usually the friction between the face of the nut and the tube end is sufficient to make it self-feeding, where the teeth are shaped to cut in the direction in which the nut unscrews from the bolt.

When the hole is through, the completion of the limber is not difficult, and a hack saw blade may be inserted to make diagonal cuts from the lower edge of the hole to the planking. If the blade is provided with a handle of such a shape as to clear obstructions, the work will progress faster. In some inaccessible places, particularly around the motor bed, the drill and saw may be found unsuitable.

In instances where limber holes are omitted from the design for fear of weakening the frames or floor members unreasonably, then the cutting would be inadvisable. If investi-

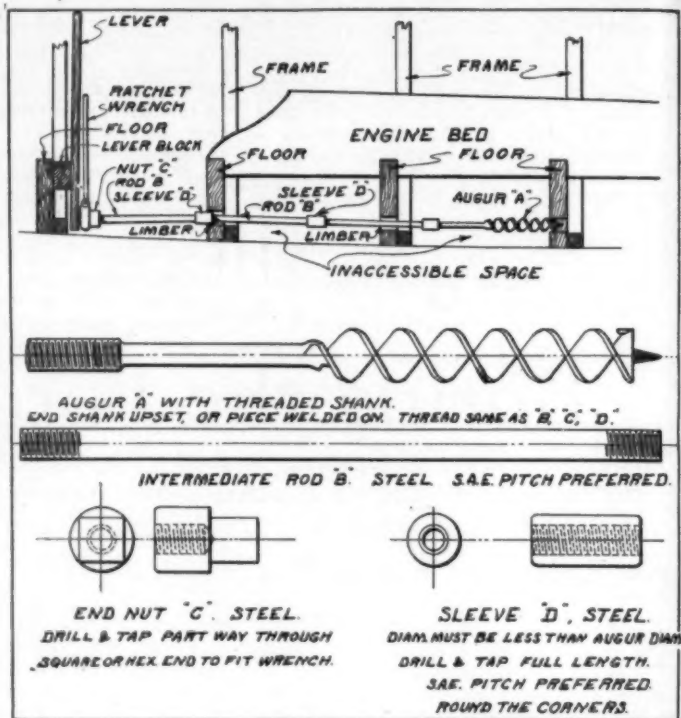


Under certain conditions, Mr. Luers suggests filling up of the bays between the frames with cement

gation reveals this condition it may be well to fill in the bays with Portland cement until it is flush with the upper edges of the frames or obstructions, giving practically an unobstructed flow to the water. This method of eliminating water pockets has the advantage of being cleaner, for the sediment, oil, grease, etc., which collects is more readily cleaned out. When using the cement it is well to wet the inside of the bottom, and though not always necessary, to drive some nails into the sides

of the frames, securing or fastening the substance more permanently. The cement should be mixed with water to a consistency which will just pour.

G. A. LUERS, Washington, D. C.



Mr. Parker recommends the use of an extension rig for boring limber holes in frames or floor members that are particularly inaccessible

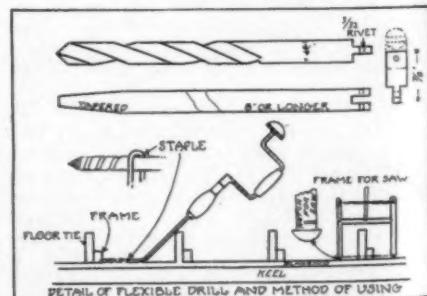
Improved Tools Used

THE cutting of limber holes through frames, floor and engine timbers is usually a tedious job. Having occasion at one time to do this very thing I found the following methods very satisfactory and quick:

On the shank end of a $\frac{3}{8}$ -inch twist drill I filed a tongue as shown in the sketch. A piece of $\frac{3}{8} \times \frac{3}{8}$ -inch steel rod was then slotted and tongued as shown for the shank, taper squared and slotted. A piece of $\frac{3}{8} \times 8$ -inch steel rod fitted these three pieces together, and I rounded the ends and joined them with $3/32$ -inch steel pins. I now had a drill mounted as a universal joint. Fitting this to a brace I found that I was able to drill a hole through the frames close to the planking with the brace held at an angle of 45 degrees. A staple driven down on the drill kept it from slipping, while a piece of tin under the knuckle prevented marring the planking.

I drilled two holes in each frame an inch apart, and with a coping saw blade mounted on an improvised frame or stretcher I sawed the piece out. The stretcher was made on the principle of the old-fashioned buck saw, as may be seen from the illustration.

T. P. KLIESRATH, Bronx, N. Y.



A breast drill with universal joint which Mr. Kliesrath used successfully

Wiring the Small Cruiser

A Job Which, if Improperly Done, Will Cause an Endless Amount of Subsequent Trouble and Annoyance—Accessibility and Thorough Protection Against Oil and Water the First Requirements

THE PRIZE CONTEST—Answers to the Third Question in the December Issue

Best Results From Conduit

(The Prize-Winning Answer)

IN wiring the small cruiser, the system should be protected by fuses capable of carrying not more than 50 per cent. overload, as a short circuit will ruin the storage battery and possibly overheat the wires and set fire to the boat. The table shows the size of wire that will carry the different currents safely; for the average small cruiser a No. 14 stranded wire will prove satisfactory.

The simplest and cheapest method of wiring is to use the porcelain knob, cleat and tube fittings, shown in Fig. 1. Use a wire with a heavy rubber covering, and solder and tape all splices. If a good appearance is desired, run the wire under seats, through lockers, etc.

Wood molding (Fig. 2) is often used, and makes a neat installation, and if the cap is fastened on by screws the wire is accessible, but its great drawback is that it absorbs moisture, even when varnished.

The best system of all, the one which fills every requirement, is rigid iron conduit with conduit fittings; these fittings are low priced and may be purchased for every need; if moisture-proof they keep the pipes free from damp air. Conduit comes with or without insulating lining, and either way is approved by the underwriters; a section is shown in Fig. 4.

Below are given hints and directions for the installation of conduit:

Conduit is cut and threaded for use just the same as water piping.

After cutting pipe, ream out the end to remove burrs, lest they cut the insulation.

Conduit may be bent to fit curves and offsets, and is fastened to woodwork with ordinary pipe clips.

All joints and box caps should be painted with white or red lead to keep out moisture.

Junction and outlet boxes of stamped steel are used a great deal now; they have punchings that may be knocked out at different points to allow the insertion of pipe; the pipe is held on the outside by a check nut and on the inside by an insulating nut. An outlet box is shown in Fig. 7.

The wires should not be fished in until the conduit is completed; place junction boxes at every branch.

To fish the wires through, bend the end of the fish tape into a hook; then push it through from one outlet to another, where the wires are secured to the hook and pulled through (see Fig. 5). Make the joint as small as possible, then wrap it with friction tape and apply powdered talcum or soapstone in order that it may pull through easily. Should you have difficulty in getting the fish tape through a long or crooked run, start from the other end, putting in another tape and working it around until it hooks into the first one; then pull it through.

All joints should be soldered and taped with rubber and friction tape.

Wiring may be removed for repairs at any time without disturbing the conduit, and if

the twin loop wiring (Fig. 6) is used, there are no branches; wherefore the wiring may be removed more easily.

Water-proof plug sockets may be used for the running lights or the wires may be run through the side as shown in Fig. 8.

A combination of conduit and open wiring is good and costs less; use conduit around the engine and in the open.

The amateur may deem the installation of conduit difficult, but this is a mistake, as anyone capable of doing ordinary piping and wiring will be able to do this work easily.

For anyone desiring a first-class, trouble-proof installation, conduit will prove entirely satisfactory.

ALBERT T. GRAY,
Dover, N. H.

Prepare Against Short Circuits

IN wiring a boat it is of great importance to use soldered connections wherever possible and allow no chance for a short circuit. All wires or cables should be run through some protecting material, such as circular loom alaphaduct or lead cable and securely fastened in place. Water-proof outlets, or deck plugs as they are commonly called, should be used for all outside connections. On account of the low voltage of these installations it is desirable to have the point of distribution centrally located and the lines as short as possible to obtain the full efficiency of the system. The wire used should be plenty large enough to carry the current required with a good margin of safety.

In wiring a boat one point in particular should be borne in mind: keep all wires as far as possible from the compass, and run both sides of the line on one side of the boat and not one on each side. Any current of electricity passing near the compass will seriously affect its accuracy.

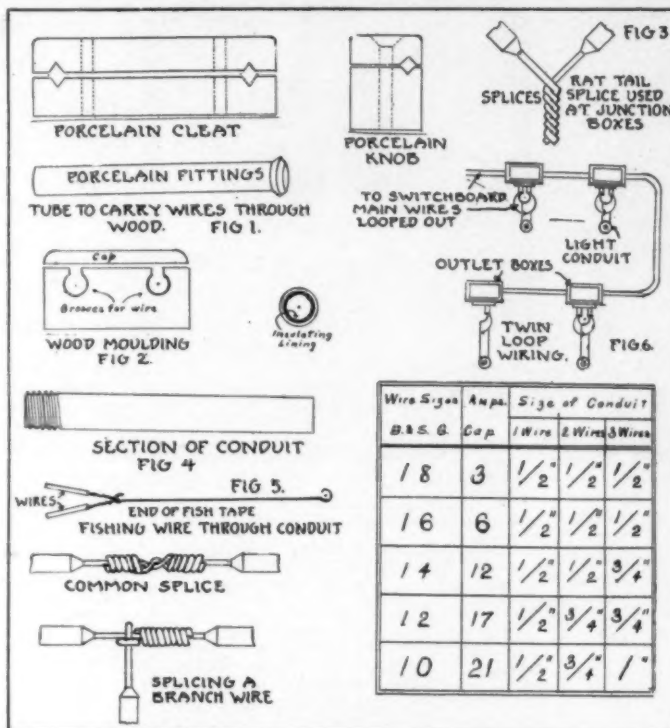
Do not use a single wire in any case, but get stranded wire protected by rubber insulation and braid. Combination cable is excellent and can be had in as many as seven strands—which will allow six separately controlled circuits. Each wire has a different colored shot, and no confusion should arise from its use, while there is but one fastening to make.

Ordinary cable of the better brands is water- and oil-proof to a certain extent. Neither dampness nor water dripping over it will penetrate the insulation, and with the modern marine motor there should be no chance for any oil to get on to the wiring.

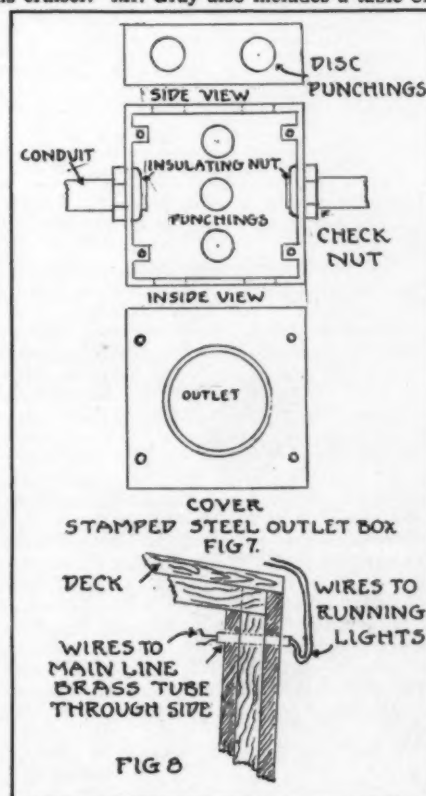
Lead cable is positively water-proof, but if the wires must run under the flooring be sure that no water can get to them. Concealed wiring is nice if nothing ever happens, but it is better to run the wires where they can be inspected and got at.

If run through a protecting cable, metal clips come for fastening this down. If run open get some red fiber ¼ inch thick and cut pieces to a size that will allow a spacing for the wires about 1 inch apart and a clearance of ½ inch. Drill holes through the blocks for the wires, and then saw the block in two across the holes. Round the corners and drill for round head screws to hold them down. This fastening is on the order of porcelain cleats but is much smaller and neater.

W. B. MOORES, Newburgh, N. Y.



Some suggestions which should prove very useful to the amateur in wiring his cruiser. Mr. Gray also includes a table of wire sizes



Provide Three Circuits

ONE of the first things to be considered in connection with the wiring of a small cruiser for electric lights is the kind of wire and material most suitable for the work.

Usually a copper wire not smaller than 16-gauge is recommended for this class of work. On account of the low voltage current of batteries or generators used for this class of lighting, it is desirable to use a wire large enough so that the voltage will not be greatly reduced when the current reaches the lamps.

Ordinary rubber-covered solid copper wire, such as is used in regular house wiring will prove satisfactory. This wire is insulated for much higher voltage than is used in boat lighting, but this same heavy insulation will prove equally valuable as a protection against dampness.

Two wires are usually run from the battery or other source of current and to these a number of lamps are connected by suitable wires. This is called a circuit. In a small cruiser it would be a good plan to run three separate circuits, each controlled from a conveniently located switchboard. Circuit No. 1 should carry the white light forward, and the two colored side lights as well as the searchlight. No. 2 is for the white light carried at the stern. This should be independent of the other running lights because it is also used as an anchor light. When the other lights are not required circuit No. 3 should carry all the cabin lights, trouble lamp and socket or connector for a light in the cockpit. If there will be times when certain of the cabin lights are not needed they should be provided with cut-out switches at the lamps.

As electric wiring is always more or less unsightly it will be an advantage if all the main circuit wires used in the cabin are run through the lockers below the transom seats. If this is done, they should be accessible for making connections and still be out of the way and out of sight. The cabin lights and port and starboard running lights may be connected to the main circuit wires by bringing the wires down between the ceiling and planking and fishing them out through a small hole cut in the ceiling at the back of the locker. If you think dampness might cause trouble, run these wires through a piece of loom. A duplex wire may be used to advantage here. To connect the branch wires leading to the lamps, first remove the insulation for about three-quarters of an inch on the main wires and scrape clean with a knife. Then remove the insulation and scrape about three inches of the end of wire to be connected. Now simply wind the end of the wire around the main wire a number of times or until the space is filled. The joint should then be soldered lightly. Next wind the joint with pure rubber tape and then with friction tape.

It should not be necessary to provide extra protection for the wire when used in reasonably dry places in a cruiser, such as in the lockers below transom seats, etc. However, should it be necessary to run the wires where extra protection would seem to be required there is a suitable material called loom or non-metallic flexible conduit.

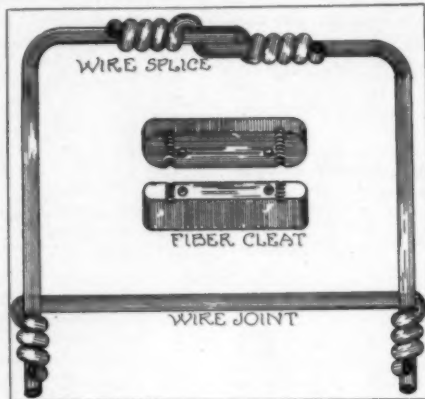
It is not necessary to knob or cleat wires for this class of work, but they should be fastened in place with small insulated staples to prevent damage.

C. H. CHRISTIE,
Saginaw, Mich.

Lay Your Plans First

A FEW simple rules should first be formulated as a guide in wiring your cruiser:

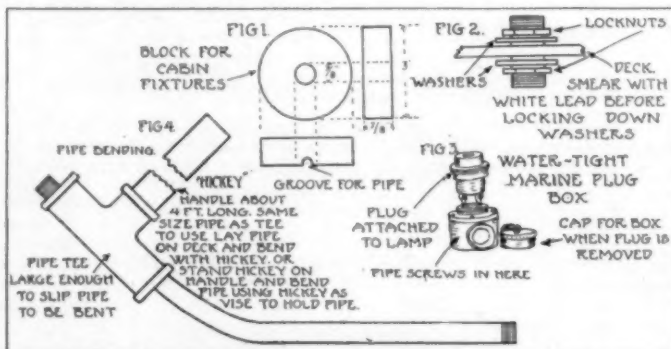
1. Make a list of all lamps or other requirements for electric current.
2. Take note of the current required by each lamp, and be sure your generator has sufficient capacity to keep the battery charged.
3. Make a simple wiring diagram showing all generator, battery, lamp and other connections.
4. Adapt the wiring diagram to your boat so that a minimum quantity of wire and number of circuits will be required.
5. Check the sizes of wire required. Be sure to select a wire or cable large enough so that it won't



Mr. Moores illustrates the method of making wire splices

heat, that the drop won't be excessive, and that it will have sufficient mechanical strength to withstand rough handling.

6. Lay out a simple conduit system into which the wires can be drawn, and as easily withdrawn if damaged by accident.
7. Use only the best materials. Economize only by simplifying the layout, not by cheapening it.
8. Make a careful estimate of the cost.



The "hickey" is a handy tool for bending pipe. Mr. Crawford declares that both pipe and hickey are essentials for the best wiring job

This list may look formidable, but it is all based on good practice. First, any job that is worth doing at all is worth planning. Well prepared plans save time, money and dissatisfaction. It is a whole lot easier to make changes on paper than to try to do so after the work is started. Work out the estimate for cost before you go too far. It is better to do a little right than to try to do a whole lot with cheap material. Conduit with water-proof conduit boxes for all connections should be used. Locate the conduit well up above the bottom of the boat so that it will never be under water, except in dire emergency. It is fully possible to make the conduit proof against moisture or an occasional dash of water.

As a further precaution all wire should be rubber- and braid-covered. Conduit openings should be water-proofed, but in all cases should open downward and be placed where as much protection will be secured from the decks as possible.

LOUIS R. LEE,
Columbus, O.

Have All Wiring Accessible

ASSUMING that the questions involved include the charging, lighting, starting and ignition, it will probably be best to start at the switch board. This board should be mounted securely to the bulkhead in as dry a spot as is possible and as near the batteries and generator as practicable, and you mustn't fail to have it at least ten inches from the bulkhead so that there will be room to work behind it. Run the wires from the generator, starting motor and batteries in a conduit up behind the board, each pair in a separate pipe, and after they are installed, stuff the ends of the pipe with rubber tape, packing it in carefully and securely with a screwdriver, much as you would pack a gland, and then paint the protruding ends with some insulating paint. This will prevent moisture and even water from entering the pipe.

The size of pipe required can easily be determined by the size of wire necessary to carry the load to which it is to be subjected. For the lighting circuits $\frac{3}{8}$ -inch pipe will be large enough, and into this may be drawn No. 14 fixture wire, which is sufficient to insulate the low voltage used, even though the insulation is somewhat lighter than that of the ordinary wire. In planning the lighting outfit it will be to advantage to use three separate circuits—one for the bow and side lights, one for the cabin lights, and the third for the stern light, as there will be times when only the stern light will be necessary, and other times when you will require only the cabin lights. Run the cabin lights in the pipe and, where the lights are to be installed, terminate the pipe behind a fixture block, stuffing the ends with the rubber tape and painting the wire as before described. The fixture or light can then be mounted on the block and will hide the unsightly ends of the pipe (Fig. 1).

When installing the running lights it may be found necessary to run the pipe outside where it is exposed to the elements, and in this case it is essential to lock it where it passes through the bulkhead or deck (Fig. 2) in order to make a thoroughly water-tight joint. The pipe must also terminate in a water-tight fitting where it connects with the lights, and an ideal outfit is shown (Fig. 3) which allows the removal of the lamps without disturbing the wiring.

The greatest difficulty when installing this system will be in bending the pipe to the required shape so that it will fit in out of the way, as, owing to the difficulty of pulling the wires through them, it is not feasible to use water or gas elbows. Fig. 4 shows a tool known to the electrical trade as a "hickey" which simplifies this difficulty and with a little practice permits one to make almost any bend required.

In some cases it may be found that after making the different bends it will be impossible to join the pipes with a coupling, owing to the cramped quarters in which the work is being performed, and when this difficulty arises, the best way is to join them by using a union. While this method does not exactly conform to the electrical code, it will be found most convenient should the occasion ever arise when changes must be made. Should it be necessary to make any splices, be sure to solder them, and in taping use a good quality of rubber tape, heating it slightly with a match or candle before applying the friction tape.

EWING A. CRAWFORD,
South Orange, N. J.

My Ideal Cruiser

Number 1 - Sunray
by
F. F. Lander



A CRUISE! What magic words are these. What others so suggest that sense of charm, of joy, of pleasant recollections, and longing to be off again? And where may sport be found so clean, so full of health, so diversified in interest? Nothing, it seems, could quite compare with the course pursued by the real cruiser-man who scoffs at luxury and style. It is he who loves to explore, to seek the quiet nook or cove, to wend his way "far from the madding crowd," and to take his time about it all. He is the one who obtains the real fun and enjoyment from boating, and is quite willing that the express cruiser fellow should deceive himself into believing his end of the game is best while incidentally paying for gas at the rate of from five to twenty-five dollars per hour.

But to have a cruise we must have a cruiser.

It must be just the kind we have been dreaming about for so long, and, of course, it must embody all of those pet notions of ours that seem so ideal. It must possess not merely temporary quarters, but real comfort for two people to live in, with room also to accommodate in like fashion, when occasion demands, two more. This means that there shall be privacy. There must also be seaworthy qualities, and the craft must be good looking from our point of view. Furthermore, there shall be no freakish details, nor need the speed be more than eight to nine knots. In fact, just a plain, sensible sort of boat, maximum as to capacity, comfort and seaworthiness, and minimum as to size.

Now let us see what we may find. There is the glass-cabin variety that came into prominence in the nineties, and then the trunk-cabin type. Next is the raised-deck boat that met

"My Ideal Cruiser"

This is the first design of the small cruiser series which was announced in the January issue of MoToR Boating. For her size, 36 by 10 feet, we hardly see how the design of Sunray could be improved upon. She is a big small boat in every sense, and an example of what the amateur designer can do. But this is only a beginning, for the designs which are to follow will prove equally as interesting.

Several excellent designs have reached us but there are possibilities for many more. You have a chance to win the \$150 prize we have offered. Be sure to read the conditions on page 29.—Editor.

with favor from the very start, and which for our purpose seems superior to the others. Here is a model that has reached a remarkably high stage of development, and no doubt the conventional type with cockpit aft will hold its own for some time to come.

It is soon discovered, however, that this is not our ideal cruiser, for some of the very features which we require are lacking. For instance, the space beneath the cockpit is ordinarily put to little or no use, although by raising the floor a compartment is made in which the engine, tanks and various gear may be located. And how are the occupants of one of the sleeping compartments going to reach the toilet room or pass outside without entering the other? Surely you would not do that way at home, nor would you ordinarily double up your guests in the same room with your-

self; yet it seems quite the usual thing on small cruisers. And now we find those high forward berths where one sees stars when he suddenly sits up, for the carlins are made of oak and oak is hard. Next we see what they call scuppers, little round things in the cockpit floor through which one sweeps the loose tobacco. But suppose such a boat starts to take water aboard, where will it go? Into the cabin, of course, for is this not a self-bailing cockpit?

At last we find the proper type, one in which great possibilities seem apparent. The bridge-deck boat surely will answer the purpose, but where may one be found that meets with our ideas? How we haunt the harbors, and besiege the broker—who is out if he sees us first. He puts us down as a crank, but we know that already. We also know that it costs good money to be a crank, for boats built to order are expensive.

OFFSET TABLE

Stations	1	2	3	4	5	6	7	8	9	10	11
Top of Raised Deck	7.23	9.04	10.87	12.74	14.63	16.54	18.47	20.42	22.39	24.38	26.39
" " Sheer Line	7.10	8.91	10.74	12.59	14.46	16.35	18.26	20.19	22.14	24.11	26.10
Rabbit Line	2.60	2.35	2.12	1.91	1.71	1.52	1.34	1.17	1.01	0.86	0.72
Bottom of Keel	2.00	1.95								1.05	
Top of Raised Deck	1.40	3.31	4.51	4.94	4.11	5.00	5.00	4.12	4.92	4.60	4.12
Sheer Line	1.92	3.05	3.11	4.60	4.96	4.11					
Water Line 3' above	1.63	2.10	3.10	4.53	4.95	4.11					
" " 2' "	1.41	2.65	3.66	4.30	4.83	4.12	5.00	5.04	4.11	4.82	4.44
" " 1' "	1.20	2.32	3.27	3.11	4.57	4.97	4.14	4.11	4.10	4.67	4.24
Load Water Line	0.10	1.10	2.85	3.56	4.04	4.30	4.71	4.70	4.44	3.10	2.93
Water Line 6' below	0.90	1.63	2.32	2.10	3.57	3.10	4.04	3.16	3.72	2.62	0.34
" " 12' "	0.86	1.05	1.70	2.11	2.64	2.10	2.17	2.90	1.10		
" " 18' "	0.20	0.51	0.86	1.05	1.36	1.46	1.26	0.70			
N 1	1.50	2.72	3.10	4.27	4.86	5.02	5.16	5.16	5.00	4.92	4.53
" 2	1.42	2.55	3.44	4.05	4.64	4.10	5.04	5.02	4.10	4.64	4.06
" 3	1.21	2.13	2.92	3.16	3.70	3.92	3.10	3.92	3.16	3.00	2.50
" 4	1.01	1.53	1.87	1.82	1.11	1.16	1.10	1.90	1.54	1.10	0.74

Dimensions in feet, inches and eighths.

Finally, in despair, we hunt up those slender strips, ripped and faired from that maple yardstick. Once more the flatirons are fished out, and the plane and other heavy junk to serve as weights for our near splines. So, finally the thing takes form and at last is done. Now there is no escape. We simply have to convert that dream boat into a real one.

Let us see what kind of a hooker it will be. Here within the limits of 36 by 10 feet will be found a boat conforming to all the requirements cited above. The beam has been carried clear aft, for room is needed; also stability, so plenty of deadrise is given; and sufficient ballast is provided to put her well down into the water where she belongs. The light, flat-floored boat, all topsides and no bottom, is flung about unmercifully when driven into a head sea, while the one with sharper sections and greater displacement stands the shock with less abuse.

The arrangement plan shows conditions exactly in accordance with those to be realized in the finished boat. By this is meant that the floor area, the width of bunks and transoms, and dimensions throughout have been carefully taken off. This, of course, is precisely as it should be, yet how often do we see ideas expressed on paper that can be produced in no other form. Naturally, it is only the cheap unscrupulous designer who thus beguiles the unsuspecting yachtsman. This arrangement plan is a composite of some of the best ideas already in practice, together with certain fea-

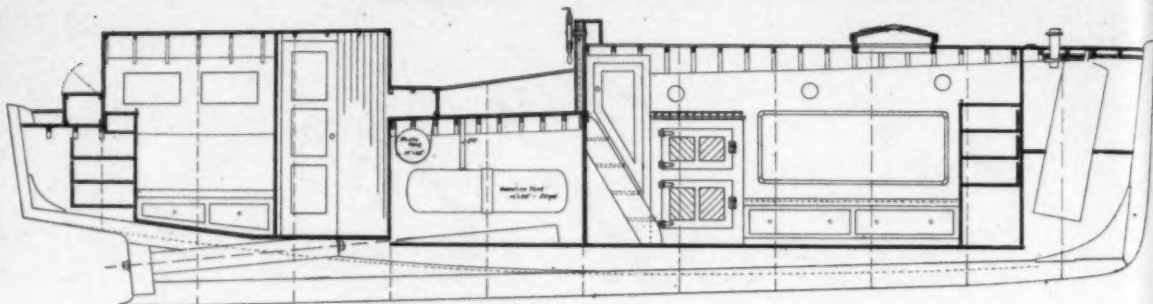
tures resulting from the writer's own experience.

The trunk cabin will constitute the owner's stateroom. Here beside the two bunks that are provided with mattress and springs, is a bureau of generous proportions. A closet also is close at hand, which has a capacity many times larger than the usual clothes locker seen aboard small craft. Immediately adjacent is the toilet room, so located as to overcome the objection cited above, and of an area sufficiently large to permit taking a sponge bath with fresh water. Bathing in salt water, while most refreshing, certainly does not remove the dirt. It will thus be seen that this after-compartment, considering its purpose and diminutive size, provides accommodations not so far removed from those obtained in a modern city apartment.

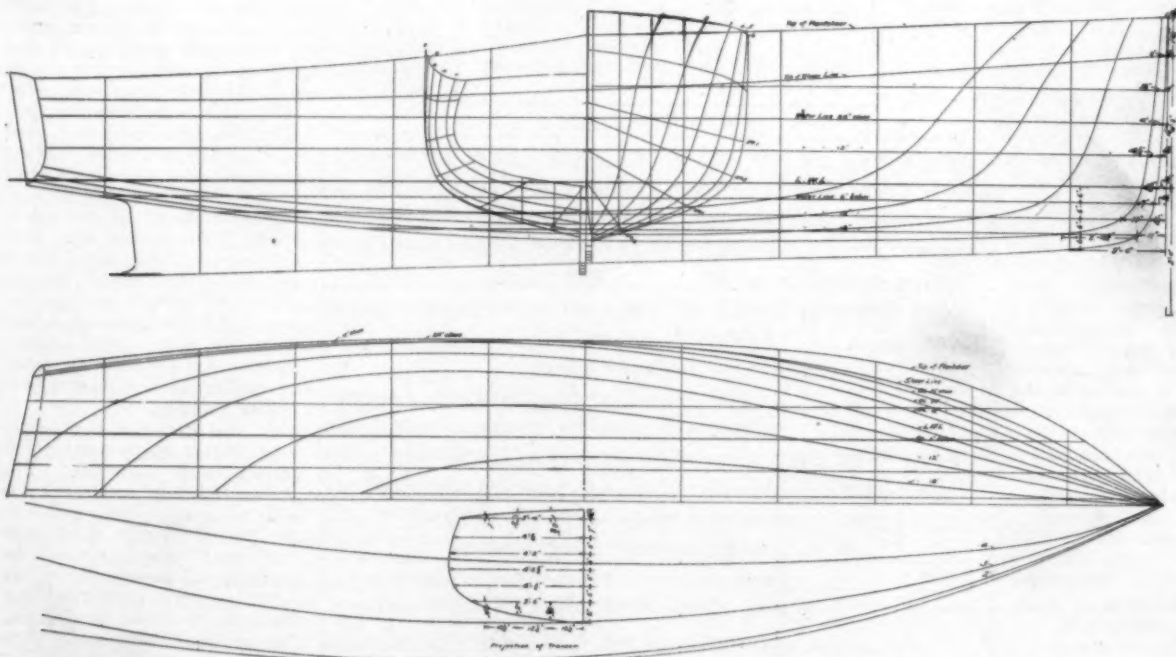
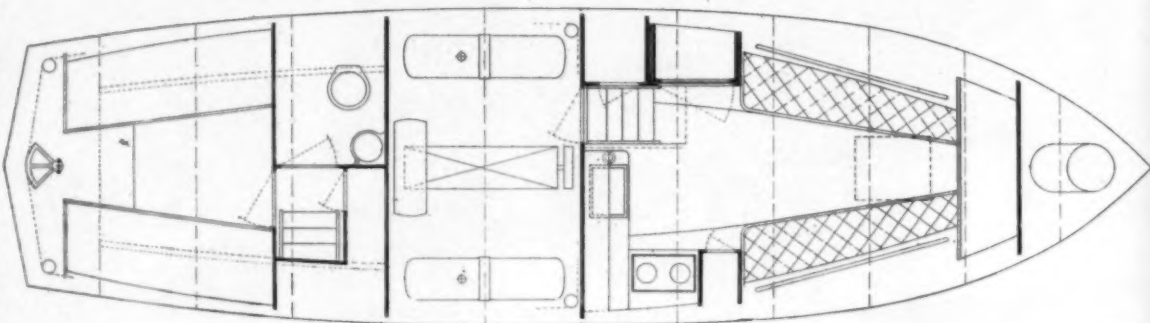
The engine compartment will be ventilated by means of the steering wheel box, which thus serves a double purpose; and the air will be exhausted through a pipe connecting with

the carburetor intake, and extending upwards to a point an inch or so beneath the deck. Two fifty-gallon Janney-Steinmetz tanks will supply fuel to a Dorman four-cylinder 5 by 6-inch engine, which will be equipped with a Leece-Neville starting and lighting outfit. The whistle tank has a large capacity, for a man's size blast both as to volume and length is desired, a condition seldom found aboard small craft. Natural light will be supplied to the engine-room through a pane of glass which forms a part of the entrance door, with another placed in the after bulkhead in the toilet room. The entire compartment except the flooring will be painted white, and if found necessary, port lights will be provided. Electric lights will be installed as well. Lubricating oil, kerosene and grease, together with that miscellaneous collection of junk that seems to be a necessary part of one's outfit will be stored here.

It will be observed that the deck space is unusually large. Amidships is the so-called bridge of a size approximately nine by five feet; the gangways have a width of nearly eighteen inches; and the after deck, while necessarily short, provides ample room to meet all needs. Here is a seat with deck-box under, where one may stretch his legs across the after rail while basking in the sun. The awning is short to permit other features, as the space around the trunk will prove ideal for fishing. There one may cast with



Inboard profile and interior arrangement plans of Sunray. Scale: 3/16 inch equals one foot



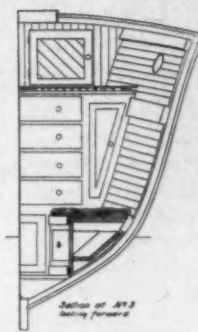
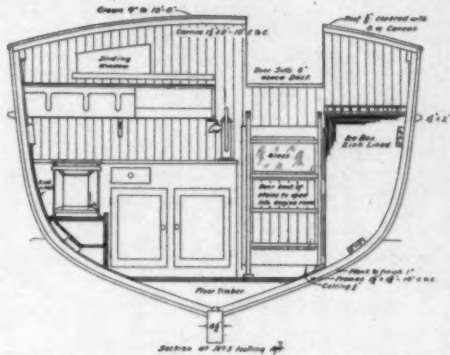
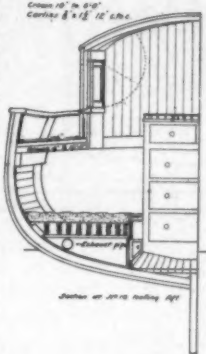
The complete set of lines of Sunray reproduced to the scale of 3/16 inch to one foot

hand line or rod without interference from above. By lowering the curtains a space well protected from the elements is provided where additional sleeping accommodations may be arranged.

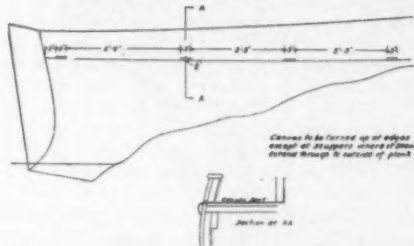
The deck will be covered with canvas and will drain by means of eight scuppers, four on each side, having a combined area of twelve square inches. Should a good big green fellow find its way aboard, the boat would instantly free itself; for the major portion would slop over the taffrail and after bulwarks, while the remainder would pass through the scuppers. Both companionways will have sills a full half foot above the deck.

Note the seat amidships, over six feet across, unbroken by the companionway which so often spoils one of the best features in this type of craft. Here there is room and to spare where one may sit at ease to feast his eyes on interesting sights, not only as they pass, but as they approach. Also note the space beneath, accessible from within, where one may store a raft of stuff.

The steering wheel is placed with a view to maximum efficiency. Not only is mid-beam



Details of sections at stations Nos. 3, 5 and 7. Scale: $\frac{1}{4}$ inch equals one foot



Detail showing construction of deck and after cabin house

best suited to his fancy. The one shown is the Perfection, made by the S. O. Co. for

marine use, and for light boat-keeping has proven satisfactory. Against the bulkhead are located the lockers for cooking utensils and food, over which is the sink with unusual space provided on which to prepare the meals. Dish lockers, shelves, etc., will complete a real galley where one may actually cook.

In placing the galley where shown, many advantages may be realized, some of which are as follows:

the cook enjoys absolute freedom from annoyances incident to others passing to and from the cabin; handling of food and waste are reduced to a minimum; freedom from drafts is afforded, increased light is occasioned by the sliding window in the bulkhead, and the motion of the boat is less noticeable.

The transoms have purposely been made narrow so as to increase the floor space, but they may be of the extension variety with extra cushions. However, this latter arrangement while superior in certain respects, will prove less comfortable to sleep on than a pipe berth with mattress. A second clothes locker is provided in addition to a large bureau or dresser and a folding table. The fresh water tank of sixty-odd gallons' capacity, is nothing

CONDITIONS FOR "MY IDEAL CRUISER" DESIGNS

THE "Ideal Cruisers" described from month to month in MoToR Boating will be only those which have been designed by amateurs—boatmen who know from actual experience what they are talking about. If you are an amateur who has ideas on the subject we should like to publish the plans and descriptions of your ideal cruiser.

For each design which we publish we shall pay \$50. In addition to this, we shall give a prize of \$100 worth of equipment of his own selection to the amateur designer whose cruiser is voted by the body of MoToR Boating's readers to be the nearest to their conception of an ideal cruiser. A poll will be taken after the

publication of the last of the series and every subscriber for MoToR Boating will be given opportunity to register his preference.

Six or more designs of different cruisers will be published in successive issues, and each design must be complete in every particular, so that the amateur who knows anything at all of boat building will be able to construct his own craft from the published particulars. The plans must include an outboard profile, as well as interior arrangement plans, construction plans, full set of lines, table of offsets, and constructional details—in fact, all data necessary for the construction of the cruiser. The descriptions

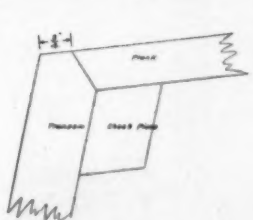
should be general in trend, and should set forth the designer's reasons for considering his cruiser the ideal one.

As construction methods are more or less alike, irrespective of design, contributors to the series should not touch on this phase of the subject in the description of their ideal cruiser. This point will be taken up in another way, for, beginning with the March issue of MoToR Boating, we intend to publish the most comprehensive "How to Build" article that has ever appeared in print.

Designs and descriptions of "My Ideal Cruiser" may be submitted any time up to May 1, 1917. Descriptions should not exceed 2,500 words in length.—Editor.

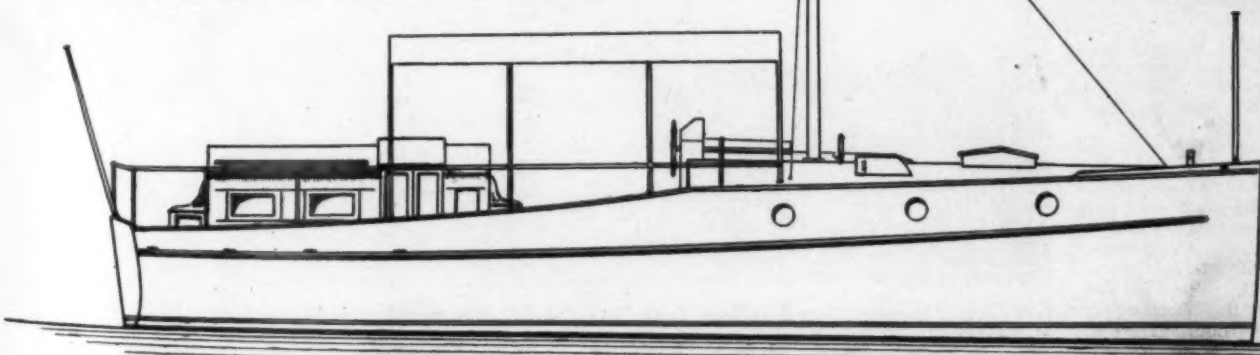
the most logical place from which to pilot your craft, but from here one may see about with unobstructed view; and while the fore and aft location makes comfortable sailing under most conditions, it must be admitted that due to the deck height things will be less pleasant when she takes on a roll. However, one should gladly make allowances, as the advantages are paramount. All controls, of course, will be within handy reach.

On entering the forward cabin one will find a large clothes locker, and next is an ice-box having a capacity perhaps equal to or even greater than that at home. Opposite is the stove space and here one may install the kind



Detail showing method of fitting check piece at the stern

more than an ordinary range boiler. Those Who have slept, or rather tried to sleep, near a built-up tank, swash plates or no, will appreciate the virtue of a noiseless receptacle free from rumble or thud. The space around the tank is utilized as the chain locker. The skylight fits over a coaming, and, depending upon the wind or weather, may be lifted off and turned at right angles. For extreme weather conditions when the inevitable leak occurs, or in winter when the boat is hauled out,

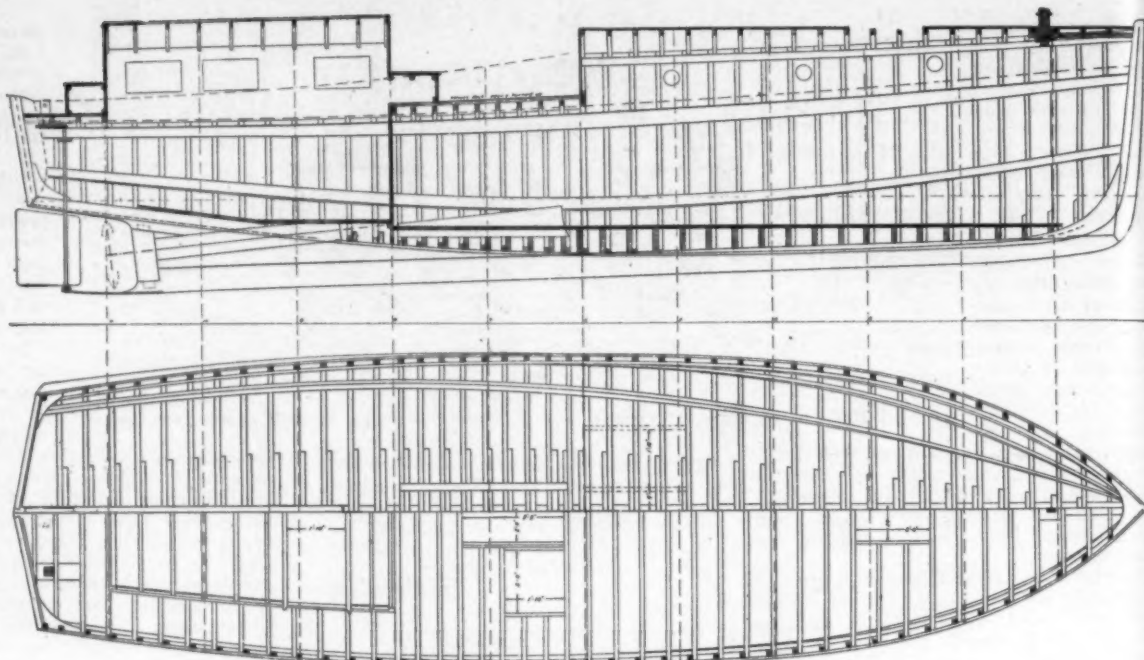


Outboard profile of Sunray. Scale: $\frac{3}{16}$ inch equals one foot

the skylights may be removed altogether, a canvas-covered substitute being then used. Electric lights will be installed throughout.

Now, with a slight stretch of the imagination this completes our five-room apartment, for here forward we have living room, dining-room, guest chamber and kitchen, all combined.

This boat is now under construction at the yard of B. W. Church, Nyack, N. Y., and will be completed early in the spring.



Construction plans of Sunray. Scale: 3/16 inch equals one foot

Three Attractive Motor Yachts of About 60-Foot Length

THE three cruisers shown in the accompanying illustrations are representative designs from the board of J. Murray Watts, of Philadelphia. That on the left is Tillie A II, a seagoing 62-footer, powered with a Sterling motor and capable of a speed of 12 m.p.h. On the right is Nedeva II, a 60-foot naval patrol boat with 20-knot speed, equipped with two Sterlings. In the middle picture is Little Aie, another patrol vessel. She is of the same model as Nedeva II, except that she is three feet shorter. Her motors, too, are Sterlings, but of less power, and give a cruising speed of 17 m.p.h. In addition to good speed and seaworthiness, all three of these vessels offer very comfortable accommodations.

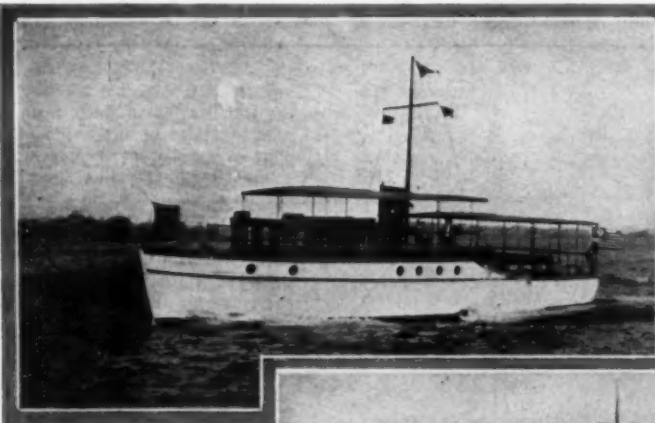
Tillie A II, for a boat of her size, has

amidships. Owing to the high freeboard the headroom is liberal throughout, there being 7 feet in most of the living quarters.

The accommodations of Little Aie are also comfortable, the forward cabin having two side berths and two wardrobes, with access to the owner's toilet-room, which is fitted with the regulation toilet, wash basin and shelves. The engine-room of Little Aie is amidships, immediately under the bridge deck, all the engine controls, etc., being brought up to the steering position on deck. In the engine compartment, in addition to the two main Sterlings, are the storage batteries on each side, with pipe berths hung over them, a 1 K. W. Fay & Bowen electric generating plant, lockers for tools, toilet, etc.

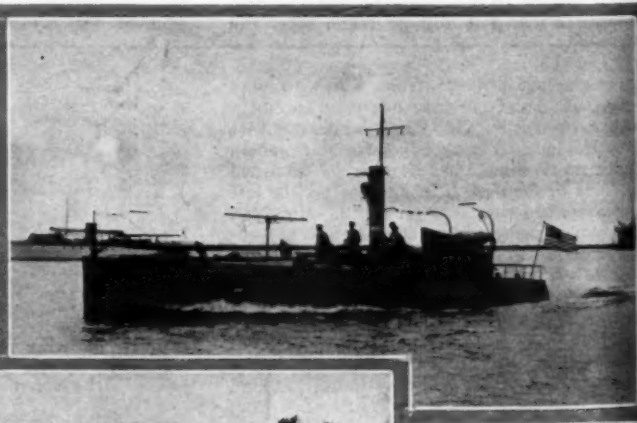
The most interesting feature of Nedeva II, is her wireless equipment. This consists of a very powerful navy type of apparatus which would be of great service in time of war. Her other equipment includes an electric ice-making machine, electric stove and oven, fans, pumps, and an unusually large searchlight mounted on a lattice work mast.

She was built for E. T. Stotesbury, of Philadelphia, by the Essington Ship Building Co., of Essington, Pa., and, in spite of the extra weight of her unusual electrical equipment, came through the builders' trials with flying colors. She is laid out with her engine-room directly beneath the bridge deck, the galley and crew's toilet forward, and the main saloon connecting with the galley. The owner's stateroom



Tillie A II, a 62½-foot seagoing cruiser owned by Anton Ahlers, of Wissinoming, Pa.

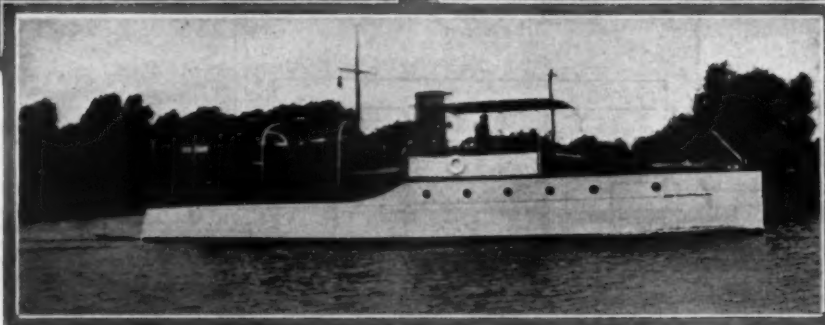
remarkable accommodations, there being two double staterooms aft with a good sized bathroom between; a 14-foot saloon and another double stateroom with small toilet forward; and the engine-room, store-room, galley and crew's quarters are



Nedeva II, a 60-foot naval patrol boat equipped with a powerful wireless outfit

is aft and contains two large berths, with wardrobe, shelves, etc. The owner's toilet opens directly from the stateroom, and contains a toilet, wash basin and shower bath complete.

There are three fuel tanks of 600 gallons' total capacity.



Little Aie, a 57-footer owned by John Price Wetherill, Jr. Her model is similar to that of Nedeva II, but her length is a little less. All three of these yachts were designed by J. Murray Watts, and are powered with Sterling engines

FROM

MOTOR BOATING READERS

This department of MoToR Boating is maintained for the purpose of giving its readers opportunity to ask questions, reply to other correspondents' communications, and submit ideas, suggestions, opinions or experiences which may be of interest and assistance to motor boatmen. There are no rules governing the department other than that postage must be enclosed when an answer by mail is desired, and that the name and address of the writer must be given in each instance. No anonymous contributions will be considered for publication, but initials or a pseudonym will be substituted for the writer's own name if the request be made. The editor does not, of course, hold himself responsible for statements made or opinions expressed by contributors to this department.

Aerial Navigation—with a Difference

LIKE the ghost of Hamlet's father, motor boats are here and everywhere; like Mary's little lamb, they tag man in all his goings; like Wyclif's dust, they have spread abroad wide as the waters be. The last word in their dissemination has been their elevation to lofty surfaces, high above the world, right under the roof of the sky, like Crater Lake in Oregon.

When the discoverer of Crater Lake sent his first dizzy gaze 2,000 feet down the almost perpendicular walls to the calm blue waters at the bottom, he expressed the belief that those waters would always remain inviolate from human touch—they would never slake thirst, or wash the dirt from hand or face, or be navigated. No man, in his judgment, could ever descend those sheer deep walls.

This descent that the old explorer thought utterly impossible has been made by a motor boat, following adventurous man down one of the highest and steepest banks in the world.

The first motor boat came eight years ago, and there are now two of them on the lake. The second was made on Wizard Island in the lake, but the first to send out its staccato beats in that silent basin and to take the burden of propulsion from calloused hands, was brought from Klamath Falls, a distance of 30 miles, and launched over the rim. This was probably the most difficult launching of a motor boat that has ever been made. The boat is 23 feet long, and four men—Will G. Steel, superintendent of Crater Lake National Park, with three assistants—lowered the boat 1,500 feet into the water.

A sled, guy ropes and pike poles were the tools. At the point where the boat was let

down a glacial gulch zigzags down the canyon, sparsely and irregularly lined on either hand with stunted trees. Those trees did not always grow at the proper place for the work in hand, but they were the anchoring points from which the boat was eased down on its perilous descent. The sled was made of heavy timbers. On it the boat was securely lashed. Two long ropes were attached on each side.

Each man took the end of a rope and coiled it around a tree. Slowly they let out line—they couldn't risk any momentum. In some instances it was hundreds of feet almost straight down to any other trees, and great lengths of rope had to be let out, the sledded burden pulling suicidally at the end. As soon as the boat was flanked by two other available trees, two men descended to secure new holds, while the two others held it from their old positions. It was often an alpine and hazardous business for the men to get to and from their trees, this in itself requiring hours, and frequently the boat got hung up and had to be prodded free with pike poles. Thus the tortoise-like progress continued till with a splash it hit the water all safe and hunky dory.

As Crater Lake is five miles in diameter, exploring it with a rowboat is tedious work. The coming of the two motor boats has been an invaluable boon. They have made the surf board popular on the lake. Women as well as men enter into this exciting sport, forgetful of the fact that it would be some drowning if they happened to drown, for the lake attains a depth of 2,000 feet.

For nine months in the year the boats are frozen up. From the first of July to the first of September they scud over those cerulean waters, tourist-loaded. A monopoly costs \$2.50 the hour per boat. For less than a nickel a minute you can have a motor boat and the most wonderful lake in the world all

to yourself—the supreme word in enjoyable solitude.

Crater Lake is about as different from Lake Galilee as two lakes can be, for the former is ten times as high above the level of the Pacific as the latter is below the level of the Mediterranean. The surface of Lake Galilee is 600 feet below sea level; that of Crater Lake 6,177 feet above sea level. In the two boats floating on the latter's surface you experience some lofty navigation.

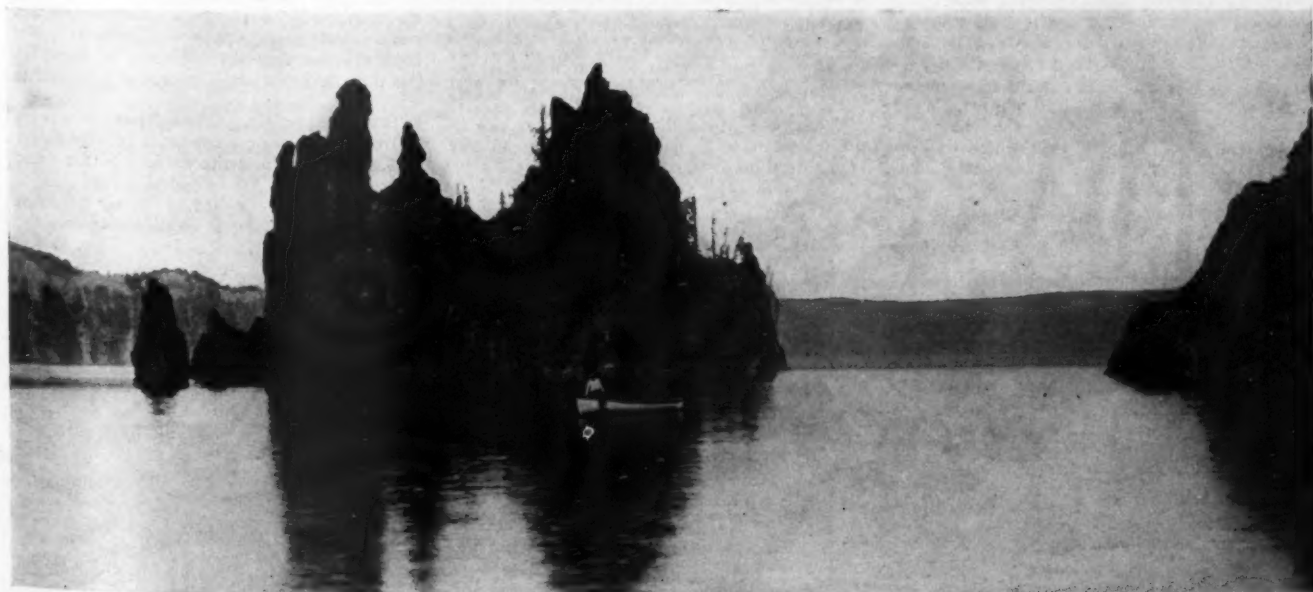
ALFRED POWERS,
Oakland, Cal.

Wireless on a 52-Footer

To the Editor of MoToR Boating:
I have read with interest your article entitled "Practical Wireless for Motor Boats" in the September issue of MoToR Boating. My interest in the subject is in connection with the order I am just placing for a 52-foot cruiser, on which I would like to install a wireless equipment if the installation can be made in a manner that will give practical results. I will be greatly indebted for any information you can give me as to the cost and installation of equipment, also information as to instructions to operator.

N. P. W., Wheeling, W. Va.

[With regard to the 52-foot cruiser which you are building, it is possible for us only to make very general suggestions. By way of apparatus we would suggest a complete receiving set, costing anywhere from \$40 to \$100, depending upon the quality which you may desire. Obviously, the more expensive sets will operate to better advantage than the cheaper ones, although the latter can be depended upon to do good work. For a transmitter capable of sending messages from 15 to 25 miles, we would suggest purchasing a three-inch spark coil, an oscillation transformer, molded condenser, sending key and a plain spark gap. This apparatus should cost in the neighborhood of \$60, provided electric power from 12 to 16 volts is available from a storage battery forming part of the engine or lighting equipment of your boat.



The Phantom Ship and one of the motor boats of Crater Lake, Ore. Of the latter there are two, and the one in the picture was lowered by four men 1,500 feet into the water. The lake is 2,000 feet deep, yet its bottom is twice that depth above sea level.

If this power is not available, it will be necessary to provide a 16-volt storage battery, which may cost anywhere from \$20 to \$30, depending upon the ampere-hour capacity and quality of the cell. Please appreciate the fact that the apparatus we are suggesting is of the better kind, and intended to cover the maximum range available with an aerial of some 35 feet length, which is perhaps as long an aerial as can be conveniently erected on your boat.]

Contemplates a Change of Motor

To the Editor of MoToR BoatinG:

I have just purchased a raised-deck cruiser of medium-weight construction, having a length of 27 feet and a beam of 7 feet 9 inches, or almost 8 feet—a rather beamy boat for her length. A 5 3/4 x 6-inch, two-cylinder four-cycle motor turns a 21 x 28-inch propeller at about 400 r.p.m., but owing to the vibration of this heavy-duty motor, I am considering installing a four-cylinder four-cycle motor of 3 3/4-inch bore and 4-inch stroke to turn at about 600 r.p.m.

1. About what horsepower ought this engine develop as compared to my present engine?
2. Would this size of motor operating at 600 r.p.m. be an efficient power plant?
3. About what speed ought I expect, and what would be the proper propeller if my present one cannot be used?

L. B., Detroit, Mich.

[We believe that you will obtain about 10 per cent. less power with the motor you have in mind than with the one you have installed at the present time. Of course, this is assuming that both motors are of good design, and in good condition.

A motor operating at about 600 r.p.m. is an efficient power plant for a 27-foot cruiser, provided it is powerful enough to drive the boat at a speed of at least 9 miles an hour. We would recommend an engine turning not quite as fast as this for a boat having a speed of much less than the above figure.

From your description, it seems probable that the motor you have in mind should give you a speed of approximately 8 real miles per hour. For a proper propeller at 600 r.p.m. we would suggest one 17 inches in diameter by 20 inches pitch. We really believe that one 18 x 21 would work out somewhat better, although we doubt whether you can get the desired speed of 600 r.p.m.]

Again the Auto Engine

To the Editor of MoToR BoatinG:

I am thinking of building a 17-foot V-bottom boat which I figure should be able to make 30 miles an hour.

Now, I have a 25 h.p. automobile motor of good make, but a certain boat company has told me that I could not expect anything out of the boat if I installed this motor. They told me I must have a marine motor, without explaining the difference. They also said being surprised if marine motor and with this same boat.

O. K., Minn.

I installed a 25 h.p. obtained 40 miles neapolis, Minn.

[E very thing depends upon the particular motor chosen, and the boat in which it is to be installed.

A motor which has outlived its usefulness in a motor car will be of no service whatsoever in a boat. It will be money thrown away even to attempt such an installation.

The hull should be as light as possible, consistent with the necessary strength, and there are several particulars about an automobile engine which should be looked into before choosing one. Some of these are as follows:

The main bearings should be long enough to stand the continuous hard service to which a motor in marine service is subjected, and there should be enough of these bearings to withstand the various strain—preferably one on each side of each crankpin. The oiling system should be looked into to see that should the engine bed be on an angle the splash system will give the necessary lubrication to the moving parts, and not allow all of the oil to settle in the lowest part of the base. If the motor is not to be run at as high speed in the boat as it was designed to run in the automobile, the valve setting will have to be changed somewhat for the lower speeds. The flywheel on an automobile engine is generally at the clutch end of the motor, which must be taken into consideration when placing it in a boat, and it should also be ascertained whether the forward end of the motor is of sufficient strength to transmit the power. A flywheel of light weight should not be chosen. The thermo-siphon or a small cooling pump will have to be replaced by a large pump for the increased head. Automobile engines are generally attached to the bed high up on the side of the motor, while marine engines are fastened low down at the base of the motor, and the crankcase placed on the former is at the bottom, which is a decided disadvantage in marine practice where the plate should be placed at the side. Again, in automobile work no thrust bearing is necessary, but one must be used for marine service. Probably a water-cooled manifold will be necessary in place of the air-cooled one. The auto engine runs best when fairly hot, and in marine practice the motors are kept considerably cooler on account of the outside water, which is pumped into the jackets, being of low temperature.]

Club Changes Flag in Accordance with MoToR BoatinG's Suggestions

To the Editor of MoToR BoatinG:

Would you kindly assist our club by giving your opinion on the following subject:

Our club flag is a white swallow-tailed pennant bearing a bow and arrow in red, and the commodore's flag is red, on which are a white bow and arrow and three stars. The question has been raised as to whether this flag would be recognized by members of other yacht clubs as a commodore's flag. Is there any recognized color scheme by which such distinction could be made clearer? The boats in our club are all small open launches or cruisers, and are arranged to fly bow and stern flags only. In what position and at what times should the flag officers use their official flags? D. H., Norwich, Conn.

[Perhaps if we outline standard practice in the matter of club flags, etc., it may answer your questions best.

Club flags are invariably triangular in shape, and as far as we know your club is the only one of any importance which uses a swallow-tailed club flag. This, in our opinion, is dead wrong, and should be changed by your club. Club flags may be of any combination of colors as long as they are triangular.

Flag officers' flags are rectangular in shape. In the commodore's flag the field must be blue, in the vice-commodore's red, and in the rear commodore's the field is always white. Many clubs use a combination of the design on their club flag for their officers' flags, keeping in mind the color scheme mentioned above, and using three stars for commodore, two for vice-commodore, and one for rear commodore. For example, the commodore's flag of your club could be a blue rectangular flag with a white bow and arrow, and three five-pointed white stars. Similarly, the vice-commodore's flag would be a rectangular red flag with a white bow and arrow and two white stars.

In small boats having only two staffs, the ensign is flown aft, as you know, and it is a common practice to fly the club flag on the bow staff. However, the correct etiquette is to fly the owner's private signal at the bow staff when under way, and the club signal at the bow on other occasions. Of course, two flags cannot be flown from the same hoist at the same time.

If the boat is equipped with a mast, or a third staff, this is used to fly the officer's flag, if the owner happens to be a flag officer, or if not, the owner's private signal. Some open boats make provision for this third staff, which is placed forward of the cockpit.

As you probably know, flags are flown from 8 A. M. until sundown, with the exception of officers' flags, which are flown all the time, both day and night, whether the boat is under way or at anchor.]

APPRECIATION.

To the Editor of MoToR BoatinG:

Your kind letter giving a clear and comprehensive statement as regards standard shape and form for boat club flags was duly received, and read at a meeting of the Board of Governors held Wednesday night.

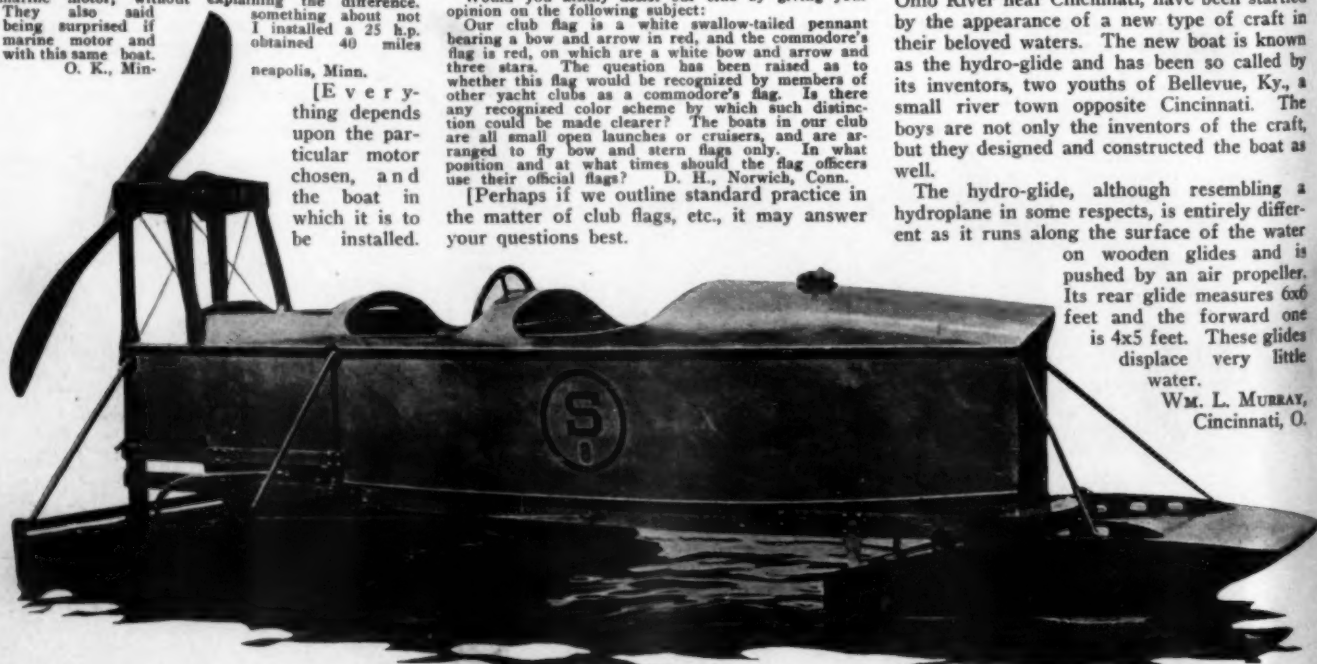
As secretary I was directed to write and extend to you the thanks of the Board who appreciated your kindness, and voted that it was the sense of the meeting that the Chelsea Boat Club adopt the suggestions you made as to the change in shape of the club and officers' flags, and this matter will be brought before a special meeting of the club in the near future. D. H., Norwich, Conn.

The Hydro-Glide

Old-time motor boat enthusiasts along the Ohio River near Cincinnati, have been startled by the appearance of a new type of craft in their beloved waters. The new boat is known as the hydro-glide and has been so called by its inventors, two youths of Bellevue, Ky., a small river town opposite Cincinnati. The boys are not only the inventors of the craft, but they designed and constructed the boat as well.

The hydro-glide, although resembling a hydroplane in some respects, is entirely different as it runs along the surface of the water on wooden glides and is pushed by an air propeller. Its rear glide measures 6x6 feet and the forward one is 4x5 feet. These glides displace very little water.

WM. L. MURRAY,
Cincinnati, O.



Out on the Ohio River last fall the hydro-glide was all the rage. It wasn't a dance, but the air-propelled craft shown above, built by two youths of Bellevue, Ky. With the motor turning the air propeller 1,300 r.p.m. it attains a 30-mile speed.

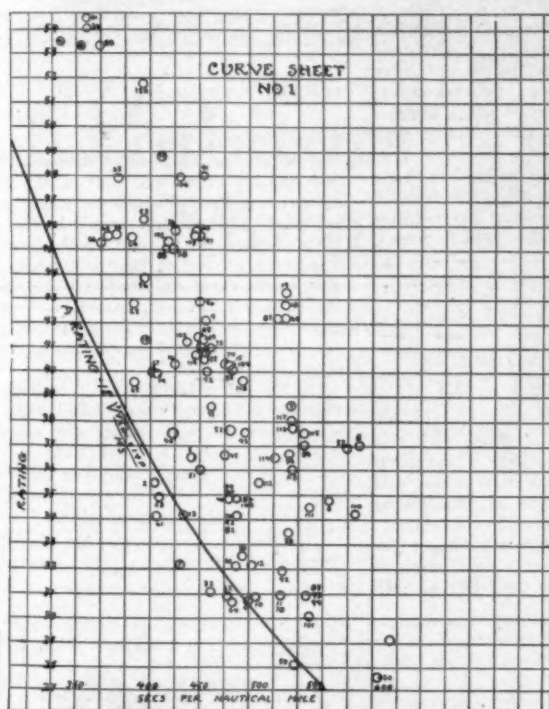
Are the A. P. B. A. Rules Fair?

A Study Conducted by the Racing Commission to Determine Whether the Existing Handicapping Rules Are a Cause for the Loss of Interest in Racing

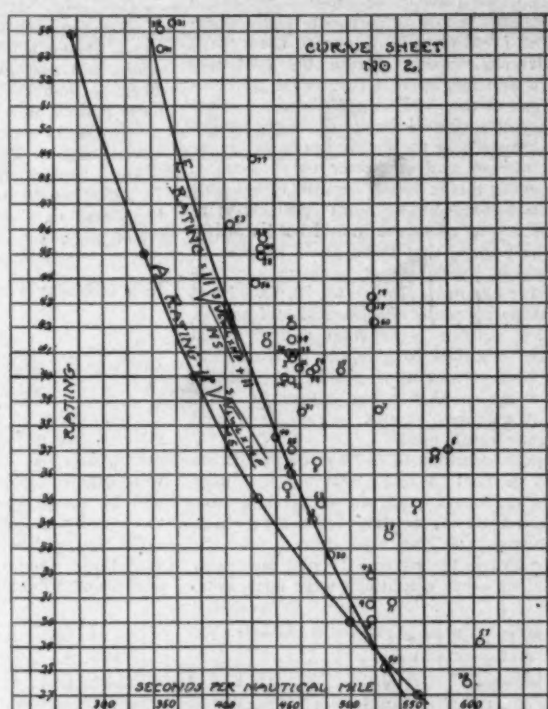
THE objects of this study are (a) to determine whether the present handicapping rules as applied to the type of boats known as cruisers (Div. 1) give equitable results and (b) if the present rules do not allow the proper handicapping of cruisers, then is it possible to formulate a rule which will give better results and more satisfaction to contestants without changing the fundamental basis on which the A. P. B. A. rating rule is founded or introducing a too radical change or one too complicated to be readily understood?

The present system on which cruisers are handicapped under the A. P. B. A. rules includes the following formulae:

$$\text{Rating} = 18 \sqrt{\frac{LWL \times HP}{MS}} \dots \dots (1)$$



Curve Sheet No. 1, showing the rating and actual speed of cruisers in A. P. B. A. races. Curve A represents the basis of the present handicapping system



Curve Sheet No. 2, showing the rating and actual speed of cruisers as used in the investigation. Curve A is the existing handicapping rule and curve E the proposed. Note how much nearer to the points curve E is

Rating as determined by the above formula is simply a measure of the speed, in nautical miles per hour (knots), which the particular boat should maintain in a race, thus

$$\text{Rating} = \frac{\text{Speed in knots} \times 4.167}{\dots \dots \dots (2)}$$

Therefore, it will be evident that by simply comparing the ratings of the boats in a race it will be possible to determine their difference in speed, and thus the handicap (time allowance) which the various boats should have over each other.

Speeds in miles per hour cannot be compared direct for the purpose of determining time allowance. Speeds must be first reduced to a time basis for a fixed distance; for example, to seconds per nautical mile, or time (seconds) required for a boat to travel 3600

$$\text{one nautical mile} = \frac{\text{Speed in knots} \times 4.167}{\dots \dots \dots (3)}$$

This fraction substituted in our rating formula (2) gives us the following:

$$\frac{\text{Time (seconds) required for a boat to travel one nautical mile} \times 4.167}{\text{Rating}} = \dots \dots \dots (4)$$

If the A. P. B. A. formula (1) were correct, and all hulls and power plants perfect as well (or at least equally efficient) then it follows that the speed of every boat could be determined by formula (4) without error. This being the case, the time allowance could also be worked out so that all boats in a race would finish exactly together (on corrected time).

Obviously neither the rules nor all boats can be perfect, and it is another of the objects of this study to determine whether means can be found to make either approach nearer perfection.

Perfection in boats is a relative term and therefore it seems that the performance of cruisers as they exist to-day, giving due weight to their various particulars, should be the basis of a handicapping rule, rather than a

were conducted with the greatest care and the results could be relied upon as authentic and as representative performances of the highest efficiency.

In Table I (page 66) the performances ratings, etc., of over 100 boats in the above races are tabulated, and a distinguishing number given to each boat.

On Curve Sheet 1 (below) the same things are shown graphically.

By referring to it one will be immediately impressed by the way the points are scattered, or, in other words, the great variations in speed for boats of similar ratings. It is at once apparent that it would not be possible to draw any one curve which would be equidistant from all points.

The conclusion which must be reached is that the basis of the present formula is far

theoretical equation dealing with what this or that boat should do under this or that condition, etc., etc., as is the case with the present A. P. B. A. rules.

The first part of this study is devoted to determining whether the existing formulae for handicapping (1), (2), (3), and (4) do give the true speed of cruisers as they exist to-day. If they do not then obviously the handicaps will not be equitable nor the results satisfactory. To determine this is a simple matter. All that need be done is to collect as much reliable and authentic data as possible of the recent performances of cruisers, and a comparison of their actual speed and their ratings will solve the problem.

Consequently such data has been collected, including the following:

- (1) Cruisers participating in the sanctioned races of 1916.
- (2) Winners of 1st or 2nd places in the sanctioned races of 1915.
- (3) Record Trophy Race on the Delaware (1916).
- (4) Ocean City Meet of the S. J. Y. R. A. (1916).
- (5) Cuxa-Hall Trophy Race (1916).
- (6) Inter-Association Race at Cape May (1916).
- (7) Cape May to Ocean City Race (1916).
- (8) Salem to Cape May Race (1916).
- (9) Races of the Middletown Yacht Club.

The above races were chosen because there was every reason to believe that the events

from the ideal one, as boats exist to-day. By this we mean the expression

$$\sqrt{\frac{LWL \times HP}{MS}}$$

The problem now becomes one as to how to best modify the existing rule to give more equitable results.

By referring to Curve Sheet 1, a curve will be seen marked A. This is the curve on which boats are handicapped according to the existing system (Formula (4) above), or in other words, this curve shows the speeds which the boats of various ratings are supposed to develop in a race. For example, a boat rating 30 should go a nautical mile in 500 seconds; one rating 40, in 375 seconds, etc. The horizontal distance from the points, representing the performances of the boats, to curve A, is the amount of time in seconds per mile that each particular boat is slower (or faster) than the speed on which she is handicapped according to the rules. For example, it will be seen that the actual speed of boat No. 21 was 360 seconds per nautical mile, while she is handicapped on the assumption that she can cover a nautical mile in 275 seconds. This boat is therefore 85 seconds slow for every

mile of the course, or 850 seconds slow in a 10-mile race—which is nearly 15 minutes.

Boat No. 5 is only 25 seconds slow per mile. Some boats are faster than provided by the rule (they are the ones which fall to the left of curve A on Curve Sheet 1).

It is obvious, and no explanation is necessary, to see that for equitable handicaps the actual speed and the theoretical speed must be equal, or at least the difference between the actual and theoretical must be the same for all boats. If one is 85 seconds slow and another 25, then the latter will win by 60 seconds per mile. If another boat is 10 seconds faster than her theoretical speed she will defeat the boat No. 21 by 95 seconds per mile, boat No. 5 by 35 seconds, etc. The above is just what is happening in every race conducted under A. P. B. A. rules.

By referring to Curve Sheet 1 again it will be noticed that curve A is much closer to the points representing the performances of the low rating boats than it is to the high rating boats. Curve A seems to be falling away to the left quite rapidly while the general trend of the points as the rating is increased is more upright. This would indicate that the high rating boat has little or no show to win when racing against a low rating boat. This statement has been proven in actual races in a most striking manner during the past two summers and has been a just cause of complaint against the A. P. B. A. rules.

To correct such a fault simply means changing the constant in the rating formula (1) to make a steeper and straighter curve than A. Before doing this it would be well to examine the performances of the boats (Curve Sheet 1) to see if any of this data should be discarded. It will be noticed that there are a number of boats which have several performances recorded, for example, Nos. 9, 64, 78, 83, 93 and 99 are all performances of Dora II. Of course, her rating (30.67) is constant and it would therefore be unfair to give the performances of this boat a weight of six in determining a theoretical speed for her rating of 30.67. Her performances should be averaged and the average result used.

The performances of a few of the boats as listed in Table I and Curve Sheet 1 indicate that the boats were not doing their best, for one reason or another, and these have been omitted from the final study. Also the performances in the Record Trophy race show that tidal or other conditions were such as to

raise the speed of the boats considerably above the average speed made in other races, in some cases as much as a mile an hour, and for this reason the results of the Record Trophy race have been eliminated in this part of this study.

Another correction or adjustment made is the elimination of the performance of a certain few boats whose speed was so very different from that of a large number of boats of like rating as to be an indication that their efficiency was especially poor. It is recognized by everyone that there always will be a number of boats which are commonly referred to as "tubs" or "crates" which are perfectly serviceable in their place, but it seems hardly fair that their presence should be much of a factor in the development of a handicap rule. Consequently, when the presence of such a craft was known to exist in the records due allowance was made.

On Curve Sheet 2 are plotted the same data as on Curve Sheet 1 except that the adjustments as noted above have been made. Curve A is also shown as on Curve Sheet 1.

It now becomes more apparent than ever that the points referring to the lower rating boats are much nearer curve A than those of the higher rating boats.

The next step was to determine whether a curve having a simple equation can be found which will pass nearer to all points on Curve Sheet 2 than curve A does. Several curves were plotted, nearly any one of which appears to be better suited than the existing rule (curve A).

Much work was done investigating how these formulae would work out when applied to the boat data in Table I, and the two formula which seemed to give the best results were

$$\text{Rule E Rating} = 11 \sqrt{\frac{\sqrt{LWL} \times HP}{MS}} + 11$$

$$\text{and Rule D Rating} = 23 \sqrt{\frac{\sqrt{LWL} \times HP}{MS}}$$

To find which of these two was preferable we selected five groups of boats whose rating in each group was nearly identical. These boats were called R, S, T, U and V, and in Table II will be found the data used in determining the speed and rating of these five boats.

On Curve Sheets 3 and 4 are shown the way these five typical boats would compare with some of the suggested formulae as well

as our existing rule (A). The improvement is very striking.

As a final test we worked out an actual case of the five typical boats (R, S, T, U and V), comparing their actual (elapsed) time for one nautical mile, with the time allowances these boats would have under rules A, E and D, respectively. These results are tabulated on Curve Sheet 4.

It will be seen that there is a great variation in the corrected times under Rule A, but under either E or D the corrected times of the five boats are almost the same. In both cases the corrected time of the highest rating boat (53.97) is identical with that of the lowest (31.36). Under Rule E, boat U is only one second off and boat S four seconds off, both of which are an almost negligible error under the circumstances. Boat T is also very close.

Rule D is almost as nearly perfect, giving a little advantage to the high and low rating boats at the sacrifice of boats now rating between 40 and 50.

Conclusions

In view of the above it seems to be a toss-up as to whether

$$\text{Rule E Rating} = 11 \sqrt{\frac{\sqrt{LWL} \times HP}{MS}} + 11$$

$$\text{or Rule D Rating} = 23 \sqrt{\frac{\sqrt{LWL} \times HP}{MS}}$$

would be preferable.

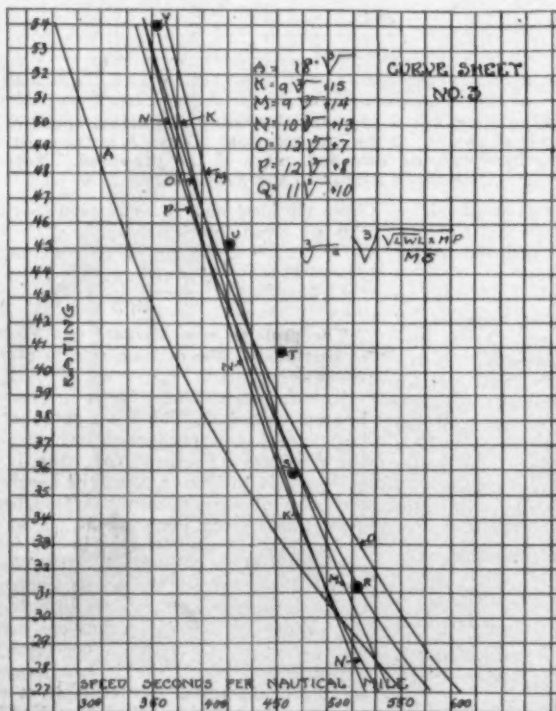
Rule D may be a little simpler, but it has one bad objection, and that is, the ratings of all existing boats would be raised nearly 30 per cent. This would strongly legislate against future racing on account of the personal element entering in. A man who owns a cruiser which now rates 36, whose enthusiasm in racing is only lukewarm, would have an inclination to drop out of racing altogether if his rating were boosted to 46, as would be the case under Rule D.

On the other hand, Rule E will reduce the existing rating of nearly all boats. A boat which now rates 36 under our existing rule would rate only 33 under Rule E. Such a change should greatly stimulate interest in the sport.

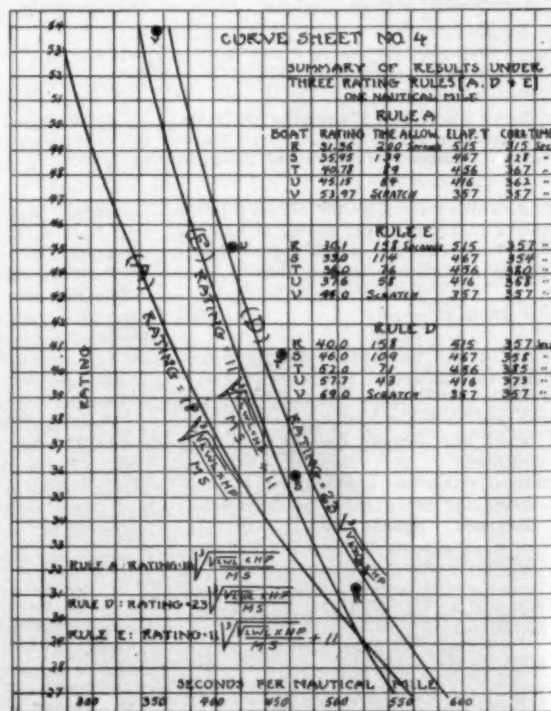
Recommendations

The Racing Commission has therefore recommended that cruisers (Division 1) be rated

(Continued on page 66)



Curve Sheet No. 3, showing how some of the suggested rules would work out as applied to the performances of five typical boats



Curve Sheet No. 4. Summary of results of a race conducted under the existing rule and two of those proposed. Note the closeness of the corrected times

Exhibitors Motor

In the list below will be found the names and addresses in alphabetical arrangement of the boat, engine, and accessory exhibitors at the National Motor Show at the Grand Central Palace—January 27-February 3. The index has been made complete up to the last moment of going to press,

at the Palace Boat Show

but in past years there have been last-minute entries, and it is to be expected that there will be a few exhibitors who will come in this year five minutes before the starting gun is fired. To these we offer our humble apologies for omitting them from the list.

Albany Boat Corporation, Watervliet, N. Y.
American Manganese Bronze Co., Holmesburg, Pa.
Anderson Engine Co., Chicago, Ill.
Arrow Motor & Machine Co., N. Y. City.
Berry Bros., Inc., Detroit, Mich.
Billings-Chapin Co., Cleveland, Ohio.
Bosch Magneto Co., N. Y. City.
Bridgeport Motor Co., Inc., Bridgeport, Conn.
Brooklyn Varnish Mfg. Co., Brooklyn, N. Y.
Buffalo Gasoline Motor Co., Buffalo, N. Y.
Bruns, Kimball & Co., N. Y. City.
Byrne Kingston & Co. and Kokomo Electric Co., Kokomo, Ind.
Caille Perfection Motor Co., Detroit, Mich.
Campbell Co., A. S., Boston, Mass.
Cape Cod Power Dory Co., Wareham, Mass.
Carbone, A., N. Y. City.
Carlyle Johnson Machine Co., Manchester, Conn.
Carpenter & Co., Geo. B., Chicago, Ill.
Chicago Varnish Co., Chicago, Ill.
Cleveland Battery & Electric Co., Cleveland, Ohio.
Columbian Brass Foundry, Freeport, L. I.
Crockett Co., David B., Bridgeport, Conn.
Curtiss Aeroplane Co., Buffalo, N. Y.
Cutting & Washington, Inc., Cambridge, Mass.
Debevoise Co., Brooklyn, N. Y.
Domestic Engineering Co., Dayton, Ohio.
Driggs Ordnance Co., N. Y. City.
DuPont Fabrikoid Co., Wilmington, Del.
Durkee & Co., Inc., Chas. D., N. Y. City.
Edison Storage Battery Co., Orange, N. J.
Elec Co., Bayonne, N. J.
Ericsson Mfg. Co., Buffalo, N. Y.
Evinrude Motor Co., Milwaukee, Wis.

Above, one of the new **weiseco** four-cycle Diesels—Below, the famous 2 h.p. Evinrude outboard motor

Fairbanks, Morse & Co., New York City.
Fay & Bowen Engine Co., Geneva, N. Y.
Ferro Machine & Foundry Co., Cleveland, Ohio.
Ford Yacht Agency, G. W., N. Y. City.
Francke Co., N. Y. City.
Frisbie Motor Co., Middletown, Conn.
Gas Engine & Power Co. & Chas. J. Seabury & Co., Cons., Morris Heights, N. Y.
Generator Valve Co., Brooklyn, N. Y.
Gray Motor Co., Detroit, Mich.
Great Lakes Boat Building Corporation, Milwaukee, Wis.
Greenport Basin & Construction Co., Greenport, L. I., N. Y.
H. & N. Carburetor Co., N. Y. City.
Higgins & Seiter, Inc., N. Y. City.
Hyde Boat & Engine Co., N. Y. City.
Hyde Windlass Co., Bath, Me.
Janney, Steinmetz & Co., Philadelphia, Pa.
Kahnweiler's Sons, David, N. Y. City.
Koven & Bro., L. O., Jersey City, N. J.
Lacy Marine Motor Co., Rochester, N. Y.
Lawley & Son Corp., Geo., Neponset, Mass.
Loew-Victor Engine Co., Chicago, Ill.
Luders Marine Construction Co., Stamford Conn.
MacRae, Hector C., Baltimore, Md.
McClellan, Chas. F., Fall River, Mass.
Matthews Co., Port Clinton, Ohio.
Mianus Motor Works, Stamford, Conn.
Miller, Chas. E., N. Y. City.
Monarch Valve Co., Brooklyn, N. Y.
Navy Gear Co., New Haven, Conn.

New London Ship & Engine Co., Groton, Conn.
N. Y. Yacht, Launch & Engine Co., Morris Heights, N. Y.
Niagara Motor Boat Co., North Tonawanda, N. Y.
Palmer Bros., Cos Cob, Conn.
Paragon Gear Works, Taunton, Mass.
Peerless Marine Motor Co., Buffalo, N. Y.
Pyrene Mfg. Co., N. Y. City.
Regal Gasoline Engine Co., Coldwater, Mich.
Scripps Motor Co., Detroit, Mich.
Smith & Co., Edward, Long Island City, N. Y.
Smith Boat & Engine Co., C. C., Algonac, Mich.
Smith-Meeker Engineering Co., N. Y. City.
Smith-Serrell Co., N. Y. City.
Snow & Petrelli Mfg. Co., New Haven Conn.
Sperry Gyroscope Co., Brooklyn, N. Y.
Splittorf Electrical Co., Newark, N. J.
Standard Oil Engine Co., New York City.
Stanley & Patterson, Inc., N. Y. City.
Sterling Engine Co., Buffalo, N. Y.
Stromberg Motor Devices Co., Chicago, Ill.
Sumter Electrical Co., N. Y. City.
Sutcliffe-Madsen Co., N. Y. City.
Tiebout, W. & J., New York City.
Toppan Boat Mfg. Co., Boston, Mass.
Valentine & Co., N. Y. City.
Van Blerck Motor Co., Monroe, Mich.
Verrier-Eddy Co., N. Y. City.
Wellin Marine Equipment Co., Long Island City, N. Y.
Wheeler & Schebler, Indianapolis, Ind.
Willis Co., E. J., N. Y. City.
Wisconsin Motor Mfg. Co., Milwaukee, Wis.
Witherbee Igniter Co., Springfield, Mass.
Woolsey Paint & Color Co., C. A., Jersey City, N. J.
Zundel, R. W., New York City.

The 1917 MOTOR BOAT SHOW

ON the following pages we take pleasure in giving concise descriptions of practically all the exhibits which the visitor will see at this year's Motor Boat Show at the Grand Central Palace. While some of the last minute entrants are not included, it will be found that our descriptions serve as a very complete guide to the show so that the interested motor boatman may go to the Palace after looking this over with a knowledge of just exactly what he most wants to see.

Others who are so situated that they are unable to come to New York during Show week may keep themselves informed of the trend of boat and engine building as evidenced by the new models which are exhibited and herein described.

We have always felt that the boating enthusiast wants most to

read about the Big Show at the time when it is taking place—before he attends or between visits or when he has returned home with his pockets full of catalogs and souvenirs. In the first instance he prepares himself for what he is to see and in the last he refreshes his memory of the things he has seen. For those who are unable to be on hand the factor of news interest enters into an article of the kind which we give to our readers, and the reader—if he is anything like ourselves—wants to read about what everybody is talking about.

When the show is over every motor boatman turns his thoughts ahead to the new season and is no longer interested in a closed chapter, but while the Show is in progress it is the year's liveliest issue, and we believe that a contemporaneous descriptive article is the most valuable service we can render to further its success.—Editor.

As usual the Speedway exhibit of the Gas Engine & Power Co. and Chas. L. Seabury & Co., Cons., of Morris Heights, N. Y., occupies a prominent position at the show. Perhaps its most interesting feature is the 52-foot express cruiser. In this boat it is the builders' desire to show the possibilities contained in a boat of moderate dimensions and power installation. There are separate berths for seven persons, and by a novel double berth arrangement nine or ten can be carried. This number includes two in the crew who have air and ample accommodations in the motor room. The side decks, which afford comfortable passage fore and aft on the boat without going through the cabin, make an interesting feature of the design. The galley is unusually large, and by means of its placement between the dining saloon and the crew's mess, service is convenient to either of these compartments. The engine-room is a well laid out, well ventilated compartment amidships, providing ample space for the motor and its auxiliaries, and making comfortable quarters for the crew.

Not only as a pleasure cruiser but as a vessel for patrol and scout duty is this 52-footer of interest, for it comes in either the fast or the slow division of the class under 60 feet in the naval district scout requirements. For actual service the builders recommend slight alterations which are provided for in the design—namely, shifting of the steering position aft, allowing for the installation of a one-pounder on the forward part of the bridge, and the enclosure of the steering position in a metal conning tower.

Two Speedway runabouts are also shown—a 36-footer and a 35-footer. The 36-footer retains the lines and characteristics of the well-known Speedway 30's which have been built for a number of years. A fourth boat is a 35-foot coupe model which was designed and built for John W. Willys' new turbine yacht label. The hull has generous beam, and the construction is of the finest class for this type of service.

In the motor line the Speedway exhibit includes three models which are shown on the floor in addition to the four Speedways installed in the boats. In addition there are two different models of the famous Speedway alcohol range.

The Niagara Motor Boat Co., of North Tonawanda, N. Y., has on exhibition two excellent runabouts, truly representative of its high-class work—one a brand new 32-foot V-bottom design, the other a 28-foot round-bilge model.

A distinctive feature of the 32-footer is an entirely new type of windshield just designed by the Niagara people, upon which an application for a patent has been filed. The windshield consists of two pieces of glass, hinged together so that the upper half folds down against the lower. There is another hinge at

the bottom of the windshield and upon this as an axis the entire shield, both upper and lower halves, is folded down in front of the bulkhead entirely out of the way. This is particularly valuable when one man wants to get forward to the engine compartment quickly to take a look at his motor. The side stanchions of the shield are of manganese bronze and the forward end of the top is fastened to these stanchions, making it unnecessary to use straps.

The decks and interior of the boat are finished in mahogany and the seats are upholstered in Spanish leather. Of course, all the latest comforts and conveniences in the shape of equipment are on this craft, including electric starter, electric lights, searchlight and pedal reverse controls. The boat is equipped with the new Model F four-cylinder Sterling engine, and is capable of 37 m.p.h.

The 28-footer shown is a model which the Niagara company has standardized and produced in quantities for the past year. It is an attractive round-bilge design, built not so much for speed as for solid comfort. It has an exceptionally roomy cockpit with two seats at the steersman's position and a full cross seat at the after end of cockpit, giving it a seating capacity of eight to ten persons. The motor used is a 20-35 h.p. four-cylinder Sterling.

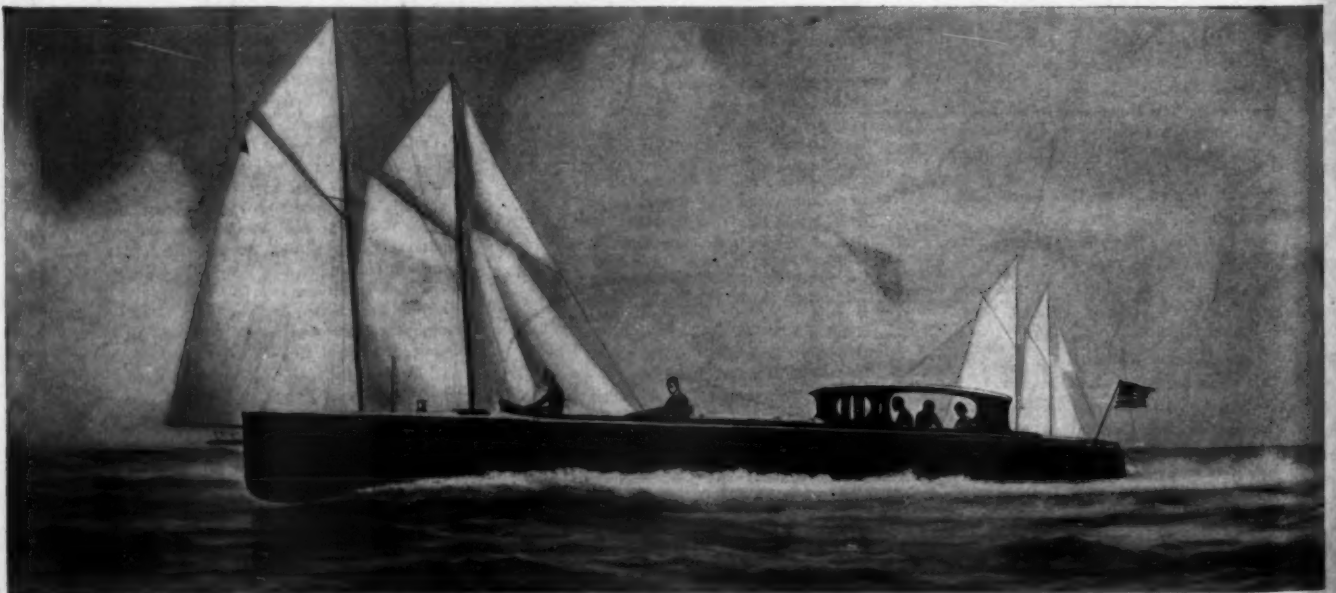
Owing to the recent reorganization which has taken place in the management of the Matthews Co., of Fort Clinton, O., no opportunity was given to prepare an exhibit for the show. The company, therefore, is contenting itself with office space, where W. E. Ferrman, the sales manager, and other members of this enterprising boat building concern will be at hand to show photographs and designs of Matthews boats and talk over new designs. One of the subsidiary organizations of the Matthews Co. has specialized to a great extent in the construction of high class marine electrical equipment, and a feature of Matthews boats has been for some time past their unusually complete outfitting in winches, holsts, pumps and other articles of an electrical nature.

As J. E. Hyde, of the Hyde Boat & Engine Co., of New York City, puts it, his concern is on hand at the show for the purpose of meeting old friends and making as many new ones as may be interested in the various lines of engines and accessories which the concern represents in this city. These include the Lockwood-Ash line of marine motors, the Wisconsin outboard motors, the Roper reversible propellers, the Michigan Standard reverse gears, Kenney silencers, Kennebec Canoes, rowboats, sails and peddles. Visitors to the Hyde booth may observe a pardonable expression of pride on his features when Mr. Hyde is talking about the company's own line of motor and rowing

tenders, runabouts and small cruisers. The Hyde spray-proof battery box which has been recently introduced, for the purpose of canceling short circuiting from an open boat owner's list of everyday amusements is on exhibit and will be open for inspection, description and sale.

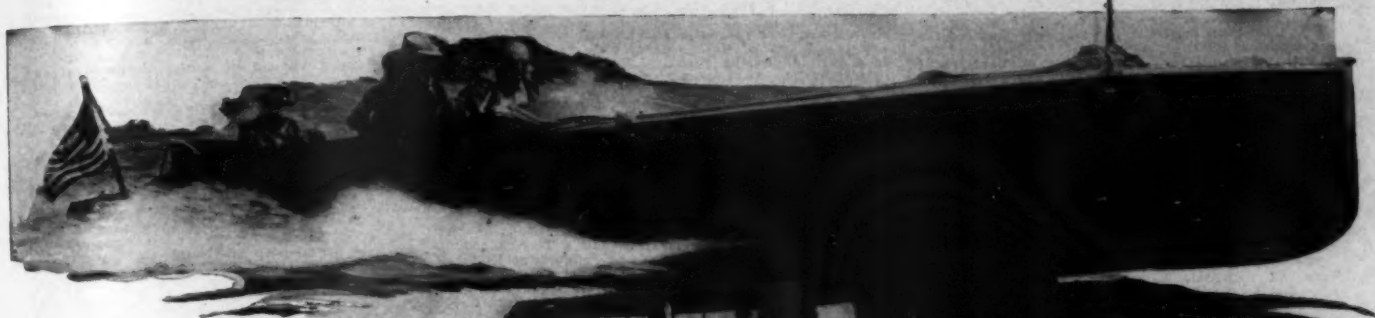
The Toppan Boat Mfg. Co., Boston, Mass., is exhibiting the usual number of attractive boats. First it is showing a 22-foot dory equipped with a 9-12 h.p. Universal motor. This is an exceptionally finely finished boat, having oak decks, bright finish and brass fittings, and it carries a large number of passengers and gives a speed of around 9½ m.p.h. This is an admirable family pleasure boat, and can be used in the roughest of seas with perfect safety. Next there is a 14-foot hydroplane Bullet equipped with a 9-12 h.p. Universal four-cylinder engine, with a speed of around 18 m.p.h. This boat is proving a great attraction as it meets a long-felt want for a safe craft with good speed. The display includes an 18-foot Swampscott motor dory equipped with a 3-4 h.p. engine. This, a lap-streaked dory with the engine housed in, is a boat designed to stand any sea or weather. It carries eight persons comfortably, and gives a speed of around 7½ m.p.h. The Toppan 16-foot Sportsman runabout is also being shown to great advantage. This is a fine boat for runabout use, is equipped with a 3-4 h.p. engine, makes around 7½ m.p.h. and is a very seaworthy dry little boat. It carries six persons comfortably, and can be used as a motor tender, as a little family pleasure boat, or for hunting or fishing. A nest of the famous Toppan skiffs is also shown, and the three grades of rowboats can be seen to the best of advantage.

Owing to a press of work the Luders Marine Construction Co., of Stamford, Conn., found it impossible to build a large boat for exhibition purposes at the Palace, and so is featuring as its exhibit a 36-foot high-speed sheltered cabin runabout of a type similar to C-6, which was described in this magazine a month or so ago. This boat has a beam of 8 feet, and, powered with a Van Blerck motor, has a speed of 30 m.p.h. It has a raised forward deck under which is a toilet room, followed by the steering seat, with a deeply upholstered seat across the back of it. Back of this again is a narrow engine trunk with a passageway on each side and a rakish little stack surmounting it. The after cockpit is protected at its forward end by a little cabin which closely resembles a motor cab. The boat is rigged with a military mast. Included in the exhibit is a 5-foot model of the 66-foot patrol boat now building by the Luders people for the Government. This model, made by the H. E. Boucher Mfg.



A 48-foot limousine runabout which will stir mid-western waters next summer. She was designed by the Great Lakes Boat Building Corp. and is being built by that concern for Logan G. Thomson, of Hamilton, O. Her power plant will be one of the new eight-cylinder 300-400 h.p. Duesenbergs

Some of the Boats Exhibited at This Year's Show



One-design stock cruiser built by the Great Lakes Boat Building Corporation, of Milwaukee, Wis., which is one of the greatest attractions at the 1917 Show

Thirty-foot runabout, built by the Albany Boat Corporation, similar to its model exhibited at the New York Motor Boat Show



A stock runabout built by the Niagara Motor Boat Co., of North Tonawanda, N. Y. This company manufactures five models of this type, ranging in length from 20 to 32 feet and having speeds of between 15 and 27 miles per hour

A type of express cruiser similar to the one shown by the Luders Marine Construction Co., of Stamford, Conn. This boat has a length of 36 feet, and is powered with an eight-cylinder $5\frac{1}{2}$ x 6 Van Blerck motor, said to show a speed of 32 miles an hour



Eighteen-foot Swampscott motor dory exhibited by the Toppan Boat Co., of Boston, Mass., which should attract great interest at this year's show

Twenty-six-foot runabout built and exhibited by the Fay & Bowen Engine Co., of Geneva, N. Y.



A type of express runabout being featured by the Gas Engine & Power Co. and Chas. L. Seabury & Co., Cons., of Morris Heights, N. Y.

Thirty-two foot stock Cruisette made famous by the Elco Co., of Bayonne, N. J.



The 1917 Motor Boat Show

Co., is complete in all respects with the guns, wireless, etc.

For some years past the yacht agency phase of the motor boating industry has not been represented at the annual show, but this year the G. W. Ford Yacht Agency, of New York City, is on hand in booth 24 on the mezzanine floor with a complete line of photographs and data on all sizes of yachts from the 30-foot motor cruiser up to the 300-foot steam yacht. The booth is attractively decorated with yacht pictures and the agency will distribute an illustrated pocket size yacht list (showing many of the best available yachts for sale or charter) in a form easily preserved and carried about. Mr. Ford informs us that he intends more to meet and talk over things with the firm's present customers than to make an energetic effort to secure new ones.

The feature of the exhibit of Geo. Lawley & Son Corp., of Neponset, Mass., which may attract most attention, is a little Boucher model of the patrol boat which the Lawley people constructed for the Government. In addition, it was thought at the moment of going to press, that there would be on exhibit a handsome 19½-foot tender built for the yacht *Levanter*. This is a single-planked white cedar hull with oak frames and keel and mahogany upper streak, deck and trimmings. The engine, located under suitable hatches forward of the driver's seat, is equipped with electric starter. The owner's cockpit aft of the helmsman's location is fitted with slatted seats and is protected by a glass shield and folding canopy.

Another boat which the company expects to exhibit is a 35-foot runabout of double plank construction, the inside planking being of cedar and the outside of mahogany. The covering boards, after deck, engine hatches and cockpit are finished in selected mahogany. The power plant, consisting of a 50 h.p. Sterling motor equipped with electric starter and dynamo, is located just forward of the helmsman's seat, in which all controls are led. The fittings of this boat are all bronze and one of its special features is a combined slide hatch and windshield arranged so that the latter may be easily dropped and the hatch opened to give a large entrance into the engine compartment. The speed of this runabout is about 20 m.p.h.

The Greenport Basin & Construction Co., of Greenport, N. Y., has taken space at the show this year primarily for the purpose of exhibiting its famous Chingachgook, the 60-foot patrol boat which created so much comment in eastern waters last fall. Visitors at the show will see her there in full commission, having been driven from Greenport to New York under her own power. Her armament is exactly the same as when she was in service in the fleet maneuvers off Block Island last fall, consisting of a 3-pound rapid firing gun and a .30-caliber Colt automatic. She is equipped with all signals that were used when she was in the maneuvers and she will be a concrete example of what may be done by boat builders and owners for the defense of our coast line. Chingachgook is 60 feet over all by 10 feet beam and 3 feet draft. Steel bulkheads divide her hull into six compartments and the machinery space contains a pair of Model F eight-cylinder Sterling motors, which drive the vessel at a speed of 22½ knots. An interesting feature of her equipment is a Delco light plant.

In addition to Chingachgook this company is exhibiting a limousine runabout belonging to Allison D. Armour, which was built for him as a tender for Utowana. When Mr. Armour recently sold his Utowana he retained possession of this private runabout and has given the Greenport people permission to show it. Twenty-six feet in length and equipped with a four-cylinder Wisconsin motor, the outfit is one which is very attractive. There is also on exhibit a 12-foot rowboat and a smaller tender measuring 9 feet 3 inches in length.

From the middle west comes one of the largest and most attractive of the motor vessels on exhibit at the Palace in the shape of a 48-footer built by the Great Lakes Boat Bldg. Corp., of Milwaukee, Wis. This craft, which has already been described in the pages of *Motor Boating*, is known as a military type express cruiser of modified V-bottom design. In view of

the growing interest in naval preparedness this cruiser should attract a great deal of attention as it is well adapted to the mounting of two rapid fire guns for operation against submarines and aircraft and for general patrol service, while leaving little to be desired as a private pleasure yacht. Although only 48 feet in length, four main compartments are provided and the builders declare that these, together with a commodious bridge deck and inviting cockpit, afford accommodations which are fully equal to those found in the typical 65-footer. The power plant, which is arranged under the bridge with full one-man control, gives this attractive cruiser a speed of 20 to 24 m.p.h.

Interest in the exhibit of the Fay & Bowen Engine Co. of Geneva, N. Y., will probably be divided about equally between this company's runabouts and its marine engines. The latter are built and are shown in both two- and four-cycle types and a feature of the four-cycle line is a new four-cylinder on-bloc engine which has recently been produced but which has never before been exhibited. On the floor in the Fay & Bowen engine space there is also one of this concern's yacht lighting outfits. Three boats are shown of which the largest is a 30-foot raised-deck runabout equipped with a six-cylinder engine and electric starting and lighting system. The speed of this boat is 20 m.p.h. There is also the 26-foot family special runabout with a four-cylinder engine, electric starter and lights, and a speed of 14 m.p.h. This craft has an unusually large carrying capacity for her size. The third boat is a 24-foot Junior runabout equipped with a four-cylinder engine which drives it at a rate of 16 m.p.h.

Although not exhibiting in person, the managers of the Wicker-Kraft Co., of Newburgh, N. Y., find their products well represented in the displays of other concerns. Wicker-Kraft chairs and other furniture for large and small pleasure craft are well and favorably known throughout the industry and are specified in the equipment of boats built by such prominent concerns as Lawley, Seabury, Elco, Luders, Albany, Fay & Bowen, Niagara and Great Lakes. All of these builders are including Wicker-Kraft furniture in the equipment of their show boats.

The Albany Boat Corp., of Watervliet, N. Y., is exhibiting the 40-foot express cruiser *Marjo*, which was built for Joseph McAlennan. At the time of writing it was thought possible that the boat would not be entirely finished before show time, but the intention was to exhibit it whether or not it was fully completed, because of the interest which has centered around this particular boat and style of boat. It is Mr. McAlennan's avowed intention to defeat the race records of 1916 and he also plans to participate in the Naval tactics of the coming season. The owner desired that a Naval appearance be eliminated from the lines of this cruiser as it is first and foremost a boat for pleasure purposes which is to be used by his family for afternoon runs and very short cruises. Nevertheless, *Marjo* being of unusually high speed and exceptionally strong construction, should prove to have great value as a Naval auxiliary. Of almost equal interest in the Albany exhibit is one of the standard runabouts which have attracted so much attention in the past. This boat, which has dimensions of 30 feet length by 6 feet beam, is arranged to accommodate seven passengers, is entirely finished in mahogany and is of the V-bottom or wave-collecting type. Equipped with a Model F six-cylinder Sterling motor, it is stated that a speed of 36 m.p.h. is regularly attained.

No less than eight boats of various sizes are included in the exhibit of the Cape Cod Power Dory Co., of Wareham, Mass., in addition to the famous Cape Cod bilge pump which in past years has always been a feature of this company's exhibit. One of the most attractive of the boats shown is the 20-foot special open dory which in the 1917 model is marked by a number of minor improvements which enhance the beauty and comfort of the craft. The boat is equipped with a 3½ h.p. Palmer motor fitted with make and break ignition. The engine is enclosed in a little cabin aft, and drives the boat at a speed of about 8 m.p.h. This craft has excellent sea-going features and has made many long distance cruises in weather which many larger boats would find difficulty in negoti-

ating. A 17-foot sailing dory is on exhibit and there are also the following boats: A 16-foot flat-bottom knockabout equipped with a 2½ h.p. jump spark motor; a 17-foot harbor runabout with round bottom and keel, powered with a 5 h.p. Palmer with Paragon reverse gear; a 14-foot outboard motor rowboat; a 12-foot flat-bottom rowboat and a 10-foot varnished tender.

The real feature in the boat line, however, is a new 21-foot runabout which the Cape Cod people consider the finest piece of work that they have ever turned out. It is powered with a 10 h.p. Sterling Kid, complete with electric starter, full automobile control and complete electric lighting equipment.

The Frisbie Motor Co., of Middletown, Conn., is exhibiting a single-cylinder 3-5 h.p. machine, a two-cylinder 12-16 h.p. kerosene engine, a three-cylinder 18-25 h.p. engine and a four-cylinder unit power plant with electric starting outfit developing 30-40 h.p. Probably the engine in this exhibit which will attract the most attention during show week is the 12-16 h.p. kerosene outfit. The Frisbie company has met with unusual success in its effort to reduce the cost of marine engine operation, and is convinced that its kerosene power plant is worth the most serious attention of every motor boat owner.

The Scripps Motor Co., of Detroit, Mich., has located its exhibit in section K and in it is showing a number of interesting Scripps power plants. Perhaps the most important of these is the new high-duty Greyhound model, a six-cylinder light-weight machine which develops 100 to 125 h.p. Not much has yet been said concerning this motor, but enough has been let out from time to time to make the body of motor boat enthusiasts keenly anxious to see what it is. In addition the Series B all-enclosed machine is shown in two-, four- and six-cylinder sizes. The popular edition of the Scripps special—a four-cylinder 15 h.p. valve-in-head unit power plant—is also making its first appearance at this show, and an interesting miniature model of the first Scripps engine made eleven years ago, as well as a model of the famous transatlantic cruiser *Detroit* are also in evidence.

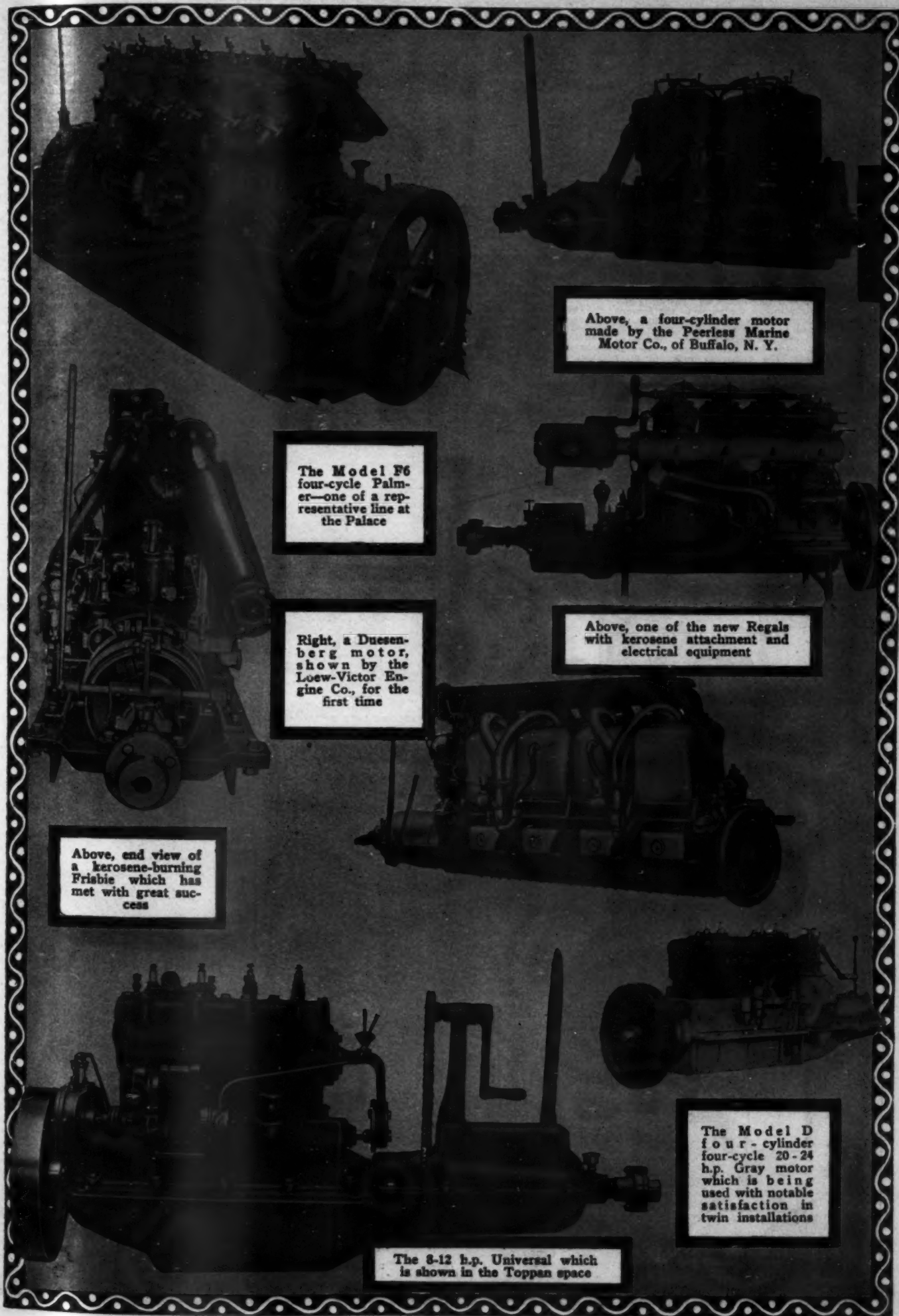
Interest in the exhibit of the Evinrude Motor Co., of Milwaukee, Wis., will undoubtedly center on the 2 h.p. Evinrude rowboat motor. This motor is already used throughout the world with universal satisfaction, and improvements in construction in the 1917 model are stated to have given a decided increase in speed and power. The canoe motor and method of installation is also shown. This machine with its neat and novel method of installing in a canoe has proven immensely popular to those who do not desire to "paddle their own canoe." The motor proper is identical with the 2 h.p. rowboat motor. The inboard motors which were first shown in 1916 are included in the present exhibit in both the twin- and single-cylinder types, and the method of installation is also shown. A new feature of the 1917 line is the Evinrude unit centrifugal pump, which consists of a regular rowboat motor minus the propeller sleeve, used in conjunction with a centrifugal pump. This outfit is intended especially to meet the needs of contractors, summer home owners, etc., and its simplicity and economy of operation have made it a very welcome addition to the Evinrude line. Oluf Mikkelsen, the New York manager for the Evinrude, will be on hand to greet his friends throughout the week.

In the south end of block K on the main floor will be found one of the most interesting exhibits of the Show—that of Bruns, Kimball & Co., of New York City and Philadelphia, Pa. Both Mr. Bruns and Mr. Kimball will spend a portion of their time in this exhibit and may also be found at the Sterling Engine Co.'s booth during the progress of the Show. Mr. Parr will spend most of his time at Bruns, Kimball & Co.'s own booth, and other representatives of the firm will also be there.

The exhibit comprises the Kermath four-cycle, the Aristocrat four-cycle and the Eagle two-cycle lines. The famous Baldrige reverse gear is also on display. The Kermath engine for 1917 is built in three sizes—12 h.p., 16 h.p. and 20 h.p. The 12 h.p. and the 16 h.p. engines are made with cylinders cast in pairs. The



An attractive 55-foot fast cruiser now building in the yards of Britt Bros. for Joshua Crane, of Boston. She was designed by Swasey, Raymond & Page and is to be powered with an eight-cylinder 300-400 h.p. Duesenberg motor



The 1917 Motor Boat Show

20 h.p. has an en-bloc casting. Aside from this the design is practically identical in all three sizes. The reverse gear is built right into the engine as a part of it, and is fully enclosed and is oiled by the same lubrication system as that which lubricates the engine. The clutch is of the multiple-disc type, and is strong and serviceable. The engine is now made with handhole plates on both sides of the base and these are large and practical. The magneto is mounted with its base in line with the base of the cylinders, which gets it well out of the blip and also leaves the handhole plates clear without obstruction from magneto or magneto parts.

The oiling system is simple and sure, having a reservoir in the base of the engine which contains ample oil for several hours of steady running. There is a float gauge showing the amount of oil in the reservoir, but this need only be examined when the receptacle is filled, and is maintained principally to prevent overflowing the reservoir and flooding the base with oil. There is an oil pump driven from the camshaft which takes the oil from this reservoir through a large strainer to the sight glass. The sight glass is conveniently located at the top and back of the rear cylinder, or can be arranged for installation on the bulkhead. As long as oil is passing through this glass the engine is fully lubricated. The oil is distributed from this point by the pump to the forward bearings, and fills all the oil troughs, after which the surplus is returned to the reservoir again. An extra leader flushes oil over the half-time gears, and there is also provision made to carry ample oil into the reverse gear case. The connecting rods are fitted with a scoop which dips in the oil and thoroughly lubricates the engine by splash. All surplus oil is returned to the reservoir.

The Small Aristocrat enters on its fourth year of service with great improvements and with a business-like look that gives assurance of increased satisfaction for 1917. The Small Aristocrat will be made in such large quantities for 1917 that despite the increased cost of material there will be no advance in price, while there will be real improvement in the quality of material and workmanship. Quantity production is the slogan of the present day, and the Small Aristocrat has reached the stage where quantity production has become a real factor.

The Eagle two-cycle engine is too well known and too thoroughly proven to need any extensive introduction. The famous Model 2-0, which has not alone driven Flying Eagle to victory and fame, but which has also won cups for its owners all over the coun-

try, is on display as is its small brother, the 7 h.p. Model 2K. Model L, a single-cylinder machine with a range of power from 3½ to 5 h.p., and with remarkable flexibility has already become very popular in fishing boats and family boats and yacht tenders. This is on display at the Show, as well as other models of the Eagle line.

The exhibit of the Arrow Motor & Machine Co., of New York City, will be of particular interest, as this concern has just purchased the business of the Waterman Motor Co., and will show some of the Waterman inboard engines and the Porto outboard in addition to the Arrow outboard motors. The standard Arrows are shown in the 2½ and 4 h.p. sizes and make an attractive display.

The Curtiss Aeroplane Co., of Buffalo, N. Y., has an attractive exhibit which includes a Curtiss Model F flying boat, a display of various types of aeroplane propellers, photographs of all kinds, and three aeroplane motors. These last comprise the OXX, eight-cylinder 100 h.p. machine, the VXS, eight-cylinder 200 h.p. model, and the V-4, twelve-cylinder 250 h.p. motor, all of Curtiss design and manufacture.

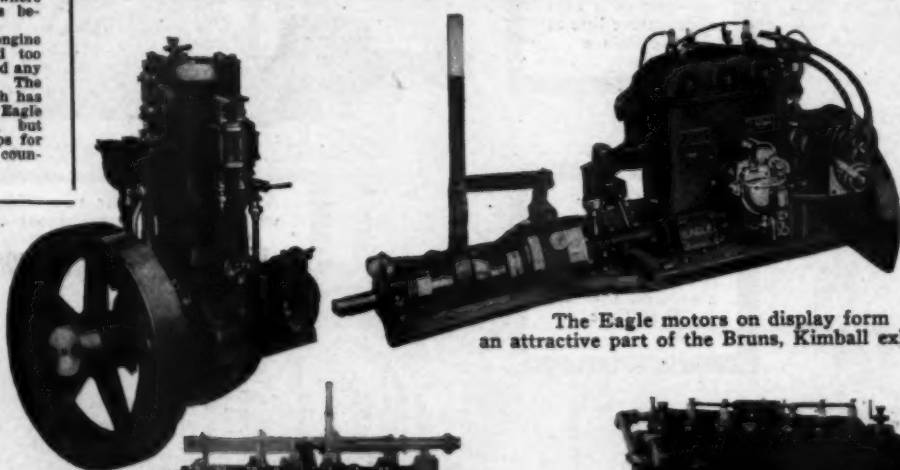
The Wisconsin Motor Mfg. Co., of Milwaukee, Wis., is showing representative examples of its line of four-cycle Wisconsin Consistent motors, including the AM, JRM, KM, GM, QM and NR machines. No material changes are apparent in the 1917 line, other than that a larger reverse gear has been adopted for all types. The JRM is a motor which has attained considerable fame for itself in speed circles. It develops its rated 110 h.p. at 2,300 r.p.m., and has four cylinders of 5.1 x 5.5-inch dimensions. The equipment includes a Bosch double-spark magneto, Rayfield carburetor (or Schebler if desired), and the usual gasoline engine fittings.

The Regal Gasoline Motor Co., of Coldwater, Mich., has on the main floor of the Palace a very complete exhibit of its line of pleasure and commercial engines.

They are all finished in gray enamel with polished brass trimmings (the stock color for the 1917 motors) and make a most attractive display. Three single-cylinder engines—the 4 h.p. Model FA, the 5 h.p. Model UA, and the 7 h.p. Model EA—are shown, three two-cylinder models and also three four-cylinder machines. The 8 h.p. Model FB two-cylinder engine may be considered of light construction and the others which are rated at 10 and 14 h.p. of medium-duty. The two last mentioned motors are new machines for this year, differing chiefly in construction over previous models in the drive and construction of the water pump and the installation of the magneto. The cooling water pump is driven by a small overhanging crank in the camshaft and has in the pump valve both the outlet and the inlet check valves which are very large and smooth acting and insure quietness and reliability. The magneto is installed in the port side and is driven by spur gears from the crankshaft. The three four-cylinder engines on display comprise a 20 h.p. Model UC, a 30 h.p. Model EC and a heavy-duty 36 h.p. Model JC. The first two engines are designed particularly for cruising boats and are very compact and well constructed. The 36 h.p. machine, which is the only heavy-duty Regal shown, is constructed for operating on kerosene; the kerosene adjustment being similar to that which has been used on Regals for the last three or four years with so much success.

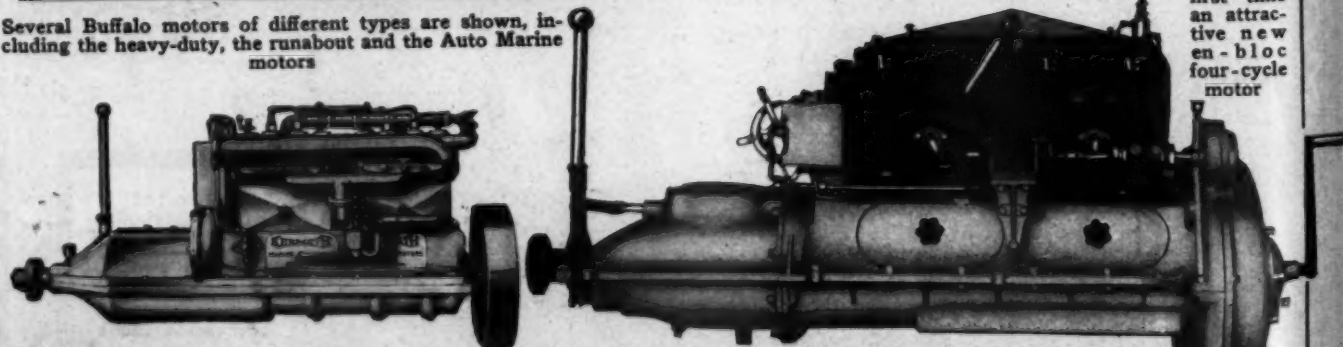
As in the past the marine engine exhibit of the Gray Motor Co., of Detroit, Mich., will be one of the most prominent features of the show. The famous two-cycle Gray line will be at the show in its entirety, and of the four-cycle type the Gray company will exhibit its famous Model F which was formerly known as the Model D, Jr., and one of the Model D machines. The two-cycle line consists of four engines, as follows: 3 h.p. single-cylinder, 5½ h.p. single-cylinder, 6 h.p. double-cylinder and 11 h.p. double-cylinder. The Gray company is a great believer in the future of the two-cycle motor and finds that its Model U in its various sizes is giving wonderful results in a great many different types of boats. In the four-cycle line the Model F is a 12-15 h.p. four-cylinder engine of good, sturdy construction which has a 2¼-inch crankshaft and bearings of very liberal size. In addition to a completely assembled engine of this type, a block of cylinders and crankcase will be shown, making it possible for everyone interested to examine the interior of this motor in detail. The Model D, a four-cylinder machine of 20-24 h.p., which can be obtained with either iron or aluminum base, ranks as a highly suitable motor for runabouts and cruisers and has lately been installed successfully in pairs with twin

Several of the smaller Minus kerosene motors are shown, as well as a representative line of gasoline engines of both two- and four-cycle types



The Eagle motors on display form an attractive part of the Bruns, Kimball exhibit

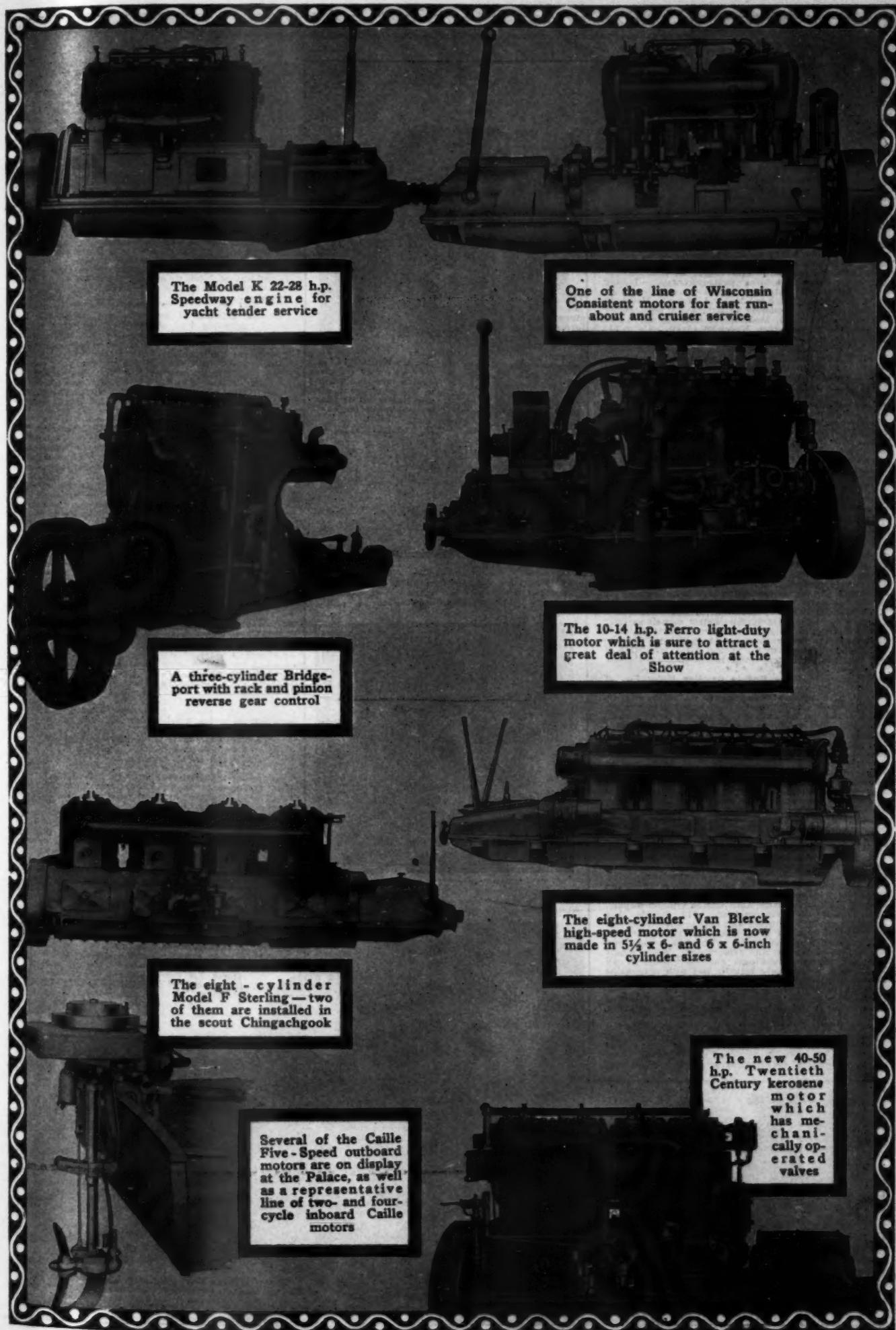
Several Buffalo motors of different types are shown, including the heavy-duty, the runabout and the Auto Marine motors



Bruns, Kimball & Co., in addition to the Eagle and the Small Aristocrat lines, are exhibiting the latest types of Kermath motors

One of the Scripps Series B all-enclosed motors. This concern has a novelty to display in its new high-duty six-cylinder Greyhound

The Fay & Bowen Engine Co. is exhibiting for the first time an attractive new en-bloc four-cycle motor



The Model K 22-28 h.p. Speedway engine for yacht tender service

One of the line of Wisconsin Consistent motors for fast run-about and cruiser service

A three-cylinder Bridgeport with rack and pinion reverse gear control

The 10-14 h.p. Ferro light-duty motor which is sure to attract a great deal of attention at the Show

The eight - cylinder Model F Sterling—two of them are installed in the scout Chingachgook

The eight-cylinder Van Blerck high-speed motor which is now made in 5½ x 6- and 6 x 6-inch cylinder sizes

Several of the Caille Five-Speed outboard motors are on display at the Palace, as well as a representative line of two- and four-cycle inboard Caille motors

The new 40-50 h.p. Twentieth Century kerosene motor which has mechanically operated valves

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screws in craft up to 45 and 50 feet in length. The president of the Gray company, O. J. Mulford, has installed a pair of these engines in his 30-footer, and finds that they give satisfaction in every respect.

In addition to the above, one of the features of the Gray exhibit is a 16 x 5-foot yacht tender turned out by the Gas Engine & Power Co. and Chas. L. Seabury & Co., Cons., of Morris Heights, N. Y., as a stock model. The Model F Gray was chosen by the builders as the standard plant for this high grade tender and the complete outfit with a stock motor installed is exhibited.

H. G. Diefendorf, manager of the Gray Motor Co., and R. Bradford Burnham, marine sales and advertising manager, as well as the company's New York representative, W. C. Disbrow, Jr., will be in attendance through the week.

A new medium-heavy-duty engine of the four-cycle type is one of the features of the exhibit of the Bridgeport Motor Co., Inc., of Bridgeport, Conn., and in addition to this the company is showing three other four-cycle engines and nine two-cycle machines of the famous non-back-firing Bridgeport type. Listing the latter models first, they are, in the single-cylinder type, Model 30 (2½ h.p., 3¼ x 4 inches), Model 40 (4 h.p., 4½ x 5), Model 50 (5 h.p., 5¼ x 5¼), Model 70 (7 h.p., 5½ x 6), Model 90 (9 h.p., 6½ x 7); and in the two-cylinder sizes, Model 80 (8 h.p., 4½ x 5), Model 100 (10 h.p., 5¼ x 5¼), Model 140 (14 h.p., 5½ x 6) and Model 180 (18 h.p., 6½ x 7 inches). These engines are the standard make and break two-cycle type with quick detachable igniter, patented timing device and built-in magneto. Purchasers may obtain them either with the Bridgeport 3-port system or with the older type 2-port system. One of their most prominent features is the patented vapor rectifier designed to prevent back-firing or base explosions and provide perfect vaporization and extremely flexible control.

The new four-cycle model above referred to is a 24 h.p. machine at 400 r.p.m. which is designed for propeller speeds from that figure up to 800 r.p.m. This model has cylinder specifications of 6¼ x 7¼ inches and is designed and constructed exactly like the larger heavy-duty four-cycle Bridgeport. The three other motors of this cycle which are shown consist of a two-cylinder 24 h.p. machine having 7¼ x 9-inch bore and stroke, a three-cylinder engine of 36 h.p. and a four-cylinder 48 h.p. motor of the same cylinder dimensions and rotative speed—375 r.p.m. The cylinders and cylinder heads of these motors are cast separately and provision has been made so that every part is quickly accessible. Ignition is effected through a high tension Bosch Duplex system and the reverse gear control is by means of a hand wheel with rack and pinion connection that is built on to the motor.

These motors are of most substantial construction and are noted for their flexible control as well as their power and fuel economy. A feature of their design is that they may be furnished for kerosene, and when so ordered are equipped with a special device consisting of a duplex heating system which has given great success.

The display of the Buffalo Gasoline Motor Co., of Buffalo, N. Y., is one of the largest at the show and consists of a representative group of the various models of high-speed, medium-speed and heavy-duty engines which make up the Buffalo line. A somewhat foreign touch is added by the presence of a couple of truck engines which the Buffalo makers turn out in large lots on contract. Three engines of the Buffalo heavy-duty type are shown: A two-cylinder model with 6 x 7¼-inch bore and stroke rated at 12-15 h.p.; a four-cylinder machine with 5 x 6¼-inch cylinder dimensions rated at 20-24 h.p., and another four-cylinder engine of similar design rated at 40-45 h.p., which has a bore and stroke of 7 x 9 inches. All of these heavy-duty engines are sturdy machines designed for hard work and plenty of it. They go into a wide variety of boats, the two-cylinder models being singularly adapted to auxiliary power, and the larger engines to motor yachts and work boats of all kinds and sizes.

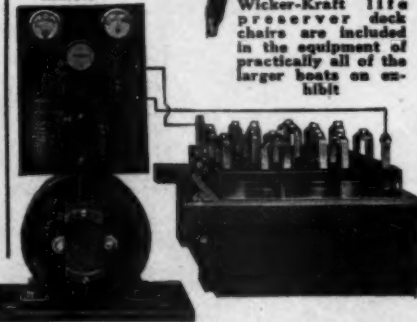
A Buffalo style which is attracting a great deal of attention is a model designed expressly for power-cruisers and the larger type of runabouts. The two sizes which are built and shown deliver 40-60 and 50-80 h.p. respectively. Then there are also both sizes of the four-cylinder Auto Marine type on display. The smaller of these, weighing 710 pounds, has cylinders of 3½ x 5 inches and develops its 16-20 h.p. at a normal speed of 800 r.p.m.; the larger size with 4½ x 5-inch bore and stroke weighs 930 pounds, and delivers 25-30 h.p. at the same speed. While widely used for power-cruisers and open boats of all kinds, these models have recently met with remarkable success in equipping cruisers of the lighter type. The smallest Buffalo shown in the little 3-4 h.p. two-cylinder model which is chiefly used for power-cruisers, but is also installed in small boats of all kinds.

As this is the first time that the general public has had a chance to inspect the new Duesenberg motors, the space of the Leavitt Engine Co., of Chicago and New York, is sure to be very well attended. On display there are five Duesenberg engines of various



The new Little Giant stern light forms an attractive part of the Willis exhibit

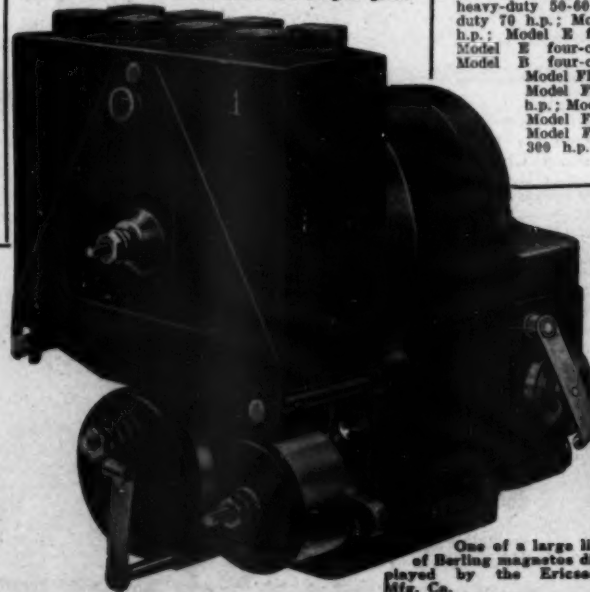
Wicker-Kraft life preserver deck chairs are included in the equipment of practically all of the larger boats on exhibit



The Henricks boat lighting outfit is one of the principal features of the display in the booth of the Sutcliffe-Madsen Co.



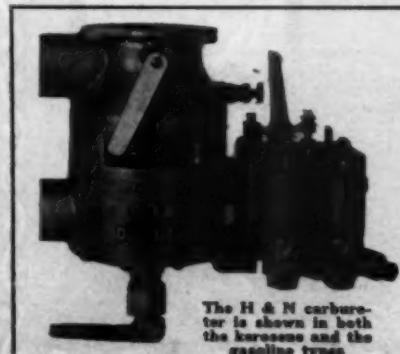
The X-ray drawing from which the above illustration is reproduced, adds a feature of educational interest to the exhibit of Paragon gears



One of a large line of Sterling magnetos displayed by the Ericsson Mfg. Co.



Cutting & Washington, Inc., are showing a wireless set in operation. This is a ½ k.w. panel transmitter



The H & N carburetor is shown in both the kerosene and the gasoline types

cylinder sizes; the two which are of most interest to motor boatmen being the six-cylinder 275 h.p. machine and the eight-cylinder 375 h.p. power plant. Both have a bore and stroke of 6¼ x 7¼ inches and develop their maximum power at a speed of 1,400 r.p.m. Each is equipped with a direct-connected Leavitt electric starting and lighting outfit and direct-connected air, gasoline and bilge pumps all ready for installation. In addition to the above the four-cylinder sixteen-valve Duesenberg automobile engine, which has won such a name for itself on the racing tracks of the country, is shown, as well as a four-cylinder 4½ x 7-inch aeroplane motor which develops 125 h.p. at 1,400 r.p.m. Two of these engines form the power plant of the Gallaudet aeroplane recently purchased by the United States Government. The largest motor in the exhibit is a twelve-cylinder 4½ x 7-inch V-type Duesenberg aeronautical motor which the makers declare to be the most powerful aviation motor built commercially in this country. It is shown complete with electric starting and lighting outfit, and it is of double interest in that it may be adapted for hydroplane use. The power developed in this machine is 310 h.p. at 1,400 r.p.m., and it can be run continuously up to 2,500 r.p.m., at which speed it develops 410 h.p.

Hector MacRae, of Baltimore, Md., is showing his usual interesting line of electrical equipment for all types of motor boats and yachts. This includes the famous Champion accumulator, and complete Champion lighting outfit consisting of battery, generator, and switchboard. Of these the 6-150 is the most popular type; it furnishes current for the usual cruiser of 50 feet or less, burning ten 8 c.p. for eight hours. With it the running lights and a 40 c.p. searchlight may be used. Lighting fixtures of all kinds complete the Champion line.

In Space 50 the Smith-Serrill Co., Inc., of New York City, is showing a complete line of Francke flexible couplings of the marine type for shafts from ¾-inch diameter up to 4 inches, as well as sectional models demonstrating how the coupling operates to eliminate misalignment troubles such as vibration, leaky stuffing boxes, and excessive shaft bending which with a rigid coupling may cause loss of power and speed. An interesting comparison between the Francke and a rigid coupling is shown by two hand-operated models—the Francke turns over freely, while the rigid coupling with a little misalignment causes the shaft to bind in their bearings. It is declared that an aggregate of 900,000 h.p. is now being successfully transmitted through these durable couplings.

To knock one's own goods and not those of a competitor—this is a standard to which the representatives of the Brooklyn Varnish Mfg. Co., of Brooklyn, N. Y., have been trained. This seems hard to believe but one has only to stop at Space 26, the headquarters of Kauri varnish, to be convinced. It is a peculiar instance, however, in which every knock seems to be a boost for Kauri varnish, as this preparation is used as a finish for several pairs of duck pins which are struck on against the other without showing the slightest harm to the varnished surfaces.

That Kauri is absolutely unharmed by fresh or salt water is forcibly demonstrated by a working model of an old mill wheel, the paddles of which have been finished with Kauri. A stream of water runs continually over the finished surfaces without detriment to the varnish.

Chas. B. Andrews is in charge of the exhibit, assisted by John G. Carl, Roy B. Anderson, W. R. Platt, W. Wilson and D. C. Anderson.

As usual the Sterling Engine Co., of Buffalo, N. Y., has arranged to have an interesting exhibit at the show, and is displaying fourteen engines ranging from the little 10 h.p. Sterling Kid to the big 300 h.p. Model F express cruiser engine. The Sterling company has exclusive features in its engines which the representatives of the concern will be there to explain to anyone interested. The most striking of these is the counterbalanced crankshaft which preserves a perfect running balance of the crank, prevents bearing friction and eliminates vibration, with the natural result of increased horsepower.

The following Sterling motors are shown: Model D two-cylinder heavy-duty 12-15 h.p.; Model D four-cylinder heavy-duty 45 h.p.; Model D six-cylinder heavy-duty 50-60 h.p.; Model D six-cylinder heavy-duty 70 h.p.; Model D eight-cylinder heavy-duty 200 h.p.; Model E four-cylinder medium-speed 10 h.p.; Model E four-cylinder medium-speed 17-25 h.p.; Model E four-cylinder medium-speed 20-25 h.p.; Model FM four-cylinder heavy-duty 25-55 h.p.; Model FM four-cylinder medium-speed 60-80 h.p.; Model FS six-cylinder speed 130-145 h.p.; Model FS eight-cylinder speed 180-200 h.p.; Model FM eight-cylinder medium-speed 240-300 h.p. and Model RS racing 225-250 h.p.

The 1917 Motor Boat Show

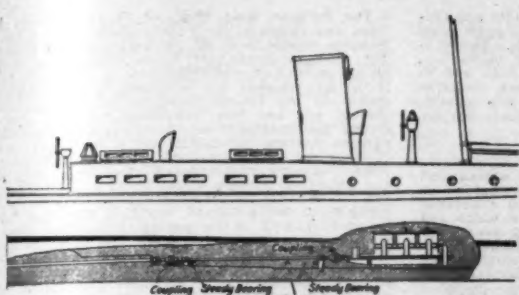


Diagram showing the installation of Francke flexible couplings which the Smith-Serrell Co., Inc., recommends

The last of these, the 250 h.p. racing engine should be of interest because of the wonderful work that it has performed in speed boats during the last few years. This is a duplicate of the engine used in Miss Minneapolis, the fastest hydroplane in the world. The Sterling Kid, which represents a high-class small motor for yachts, tenders and runabouts up to 22 feet in length, should also be of interest. This motor is of the entirely enclosed type and presents a beautiful appearance. The new 17-25 h.p. Sterling runabout and light cruiser motor is of a similar design with all moving parts including the flywheel enclosed. This motor is equipped with electric starting and lighting outfit and shows refinement to the highest degree. The Model F motors which have been used in many of the fastest boats of the past season, and the complete line of heavy-duty Sterlings which are shown should also attract a great deal of favorable comment.

A feature of the exhibit which should be a great help to the selling force on hand in taking care of all prospects is a pair of charts depicting the complete Sterling line, giving important facts at a glance of all the motors exhibited as well as those which are not included in the Sterling line.

Sterling motors are also shown installed in boats in the exhibits of Geo. Lawley & Son Corp., the Niagara Motor Boat Co., the Albany Boat Corp., the Greenport Basin & Construction Co., and the Cape Cod Power Dory Co., while the Bosch and the Ericsson concerns have motors of this make in their displays.

C. A. Criegel and A. J. Utz are in charge of the Sterling exhibit and anyone interested in Sterling motors will receive courteous attention from these gentlemen and the others in the booth.

The exhibit of the Mianus Motor Works, of Stamford, Conn., is made up this year of the different types and models of Mianus motors in nearly all of the different sizes. The two-cycle line is represented by single-cylinder motors of 3, 5, 7½, and 10 h.p., fitted with regular make and break ignition, and double-cylinder motors of 6, 10, 15, and 20 h.p. with the same type of ignition. The single-cylinder jump spark motor and the 12 h.p. two-cylinder machine of the two-cycle type fitted with high tension ignition are also shown, while several of the smaller sizes arranged to operate on kerosene are on exhibition. A number of the four-cycle engines are shown, ranging in power from 16 to 32, in two-, three-, and four-cylinder models.

One feature of the exhibit which is especially interesting is a standard 24-foot lifeboat, equipped with a Mianus 10 h.p. two-cylinder Model A-2 motor. This is a duplicate of the lifeboats which may now be found on fifty or sixty of our transatlantic and coastal passenger steamships. The exhibit also includes practical demonstrations showing the simplicity of the Mianus motors. The company is occupying its last year's space—B6.

As usual, Palmer Bros., of Cos Cob, Conn., are having a miniature show of their own, with almost countless numbers of Palmer motors of different models on display. That's how it seems to the visitor, at any rate, but there are actually twenty-two engines in the exhibit, consisting of the following types: In the four-cycle line, models NR1, NR2, NR3, and NR4 of T-head construction with 5 x 6-inch cylinders; Models NL2, NL3, and NL4, also T-head with 4½-inch square cylinders; Models F2, F3, F4, and F6 (T-head) 6½ x 8-inch bore and stroke; Models NK2, NK3, and NK4, with 7½ x 10-inch cylinders; and the Model TM four-cylinder I-head high-speed motor with a bore of 3½ inches and stroke of 3½ inches. This is a new model and is here shown for the first time. The clutch is built in and the equipment includes a high tension magneto.

In the two-cycle line there are: Models Q1, Q2, P1, and P2 of the 3-port type, fitted with jump spark, and Models C and D of 2-port construction equipped with make and break, and Model U1, a 2 h.p. 3-port machine with make and break ignition. In addition, the company is showing the Palmer multiple disc reverse clutch, a gear of the enclosed type with double disc and no hands, which is made in three sizes.

A. Carbone & Co., of New York City, has reserved space for the exhibit of the Calile Perfection Motor Co., of Detroit, Mich., where the following motors are exhibited: A 14 h.p. Aristocrat of the four-cycle type with self starter, etc.; an 8 h.p. heavy-duty with Perfection water-proof igniter, an 8 h.p. unit power plant with high tension magneto; a 6 h.p. battery



Deck search-light control, shown by Geo. B. Carpenter & Co.

Holtzer-Cabot dynamo, which is used with the Champion lighting outfits



The three models of Dyson propellers which are exhibited by the American Mangano-Bronze Co. for the first time

system, and 2½, 3½ and 4 h.p. single-cylinder motors. Several of the 1917 model Five-Speed Master Calile outboard motors with magneto ignition are shown, 2 and 3 h.p. outboard motor with battery ignition Neptune 3 h.p. outboard motor with magneto ignition. The last mentioned is an attractive small power plant for inboard rowboat use which was successfully introduced by the Calile people a short while ago. The exhibit of the Scripps Motor Co., of Detroit, Mich., which is also under the auspices of A. Carbone & Co., is described on another page of this section.

The 20th Century motor on exhibit is one of the kerosene type of four-cylinder 5½ x 8½-inch 40-50 h.p. machines. This motor is built by the New York Yacht Launch & Engine Co., at Morris Heights, N. Y., and is furnished either for use with kerosene or gasoline as fuel. It has been built for the past fifteen years, and has become well known among yachtsmen, enjoying an excellent reputation. The 1917 model includes many improvements over the former models, among which are the high tension ignition system instead of the magnetic make and break which was formerly used. The inlet and the exhaust valves on this model are mechanically operated; this is quite a change, as formerly this motor has always been built with automatic inlet valves. The governor is a fly-ball type encased and speeded up to twice the engine revolutions, making it very flexible and responsive.

In appearance, the kerosene and gasoline motors are exactly the same with the exception of the carburetor, which in case of the kerosene type is a double Kingston, and in the gasoline type is of the single Kingston type. The valves are removable through an opening having a valve cap; the cylinder head is separate for each cylinder and is only the size of the cylinder itself. All gears are helically cut, making them smooth and silent running. The bearings are of phosphor bronze. This motor is of the heavy-duty type and the parts have all been designed and constructed with a primary idea of long continuous service.

A full line of Columbian propellers and accessories is shown

The marine engines on view at the booth of The Ferro Machine & Foundry Co., of Cleveland, O., will doubtless be a center of interest and enthusiasm. The models shown are true to Ferro type in design, presenting no radical departures from the standard Ferro engines in use all over the world.

Interest will probably center in the recently developed 10 h.p. four-cycle Ferro, all enclosed, and readily accessible. It is the Ferro's first recommendation for small speed boats and other light craft where its power range is desired—from 7 at 100 r.p.m., to 14 h.p. at 1,400 r.p.m. It is cast in but three parts—which minimizes the chance of leakage, reduces wear and tear and decreases vibration. Eight-inch connecting rods make for smoothness and quiet operation. Detachable cylinder heads and removable plates permit easy access to the combustion chambers, pistons and rings, crankcase, connecting rods and camshaft, and valve spring chamber. The reverse gear is easily removed—though all adjustments can be made through covered openings without removing the cover. A circulating system of splash lubrication is used; ignition is by Bosch high tension magneto. A feature of the carburetor is the use of hot air drawn from the shield around the exhaust manifold.

A larger and more powerful four-cylinder, four-cycle Ferro is exhibited, and this unique type shows many points of difference from the other Ferro standard models. It has working parts enclosed; utilizes overhead valves (without cages); has a detachable cylinder head and removable cylinder sleeves. The casting is a mono-bloc. Developing 30 to 35 h.p., it is still highly economical of fuel—for the combustion chambers have less surface area than in other types, and have no pockets that cannot be machined.

Eleven models of the Ferro two-cycle engines are shown—from the compact and sturdy 3 h.p. Ferro Special to the big 25 h.p. which has nine years of good performance records to testify to its reliability and strength. In none of these eleven engines do the specifications show notable departures from the Ferro standards of design and construction.

The Ferro rowboat motor is worth a careful examination by anyone who has not seen it in action. It has a speed-range of 2 to 10 miles an hour (on a gallon of gasoline) and is declared equal to uninterrupted and efficient performance under the trying conditions which outboard motors are always likely to encounter. It is equipped with Bosch magneto and Kingston carburetor.

During the last year the New London Ship & Engine Co., of Groton, Conn., has developed two entirely new types of engines, one of which is shown in an accompanying illustration. Although this company has probably built a much larger number of two-cycle Diesel engines than any other firm in this country, it is now building only Neseco Diesels of the four-cycle type. This type is declared to have proven more reliable, to be of more simple design, to be operable without the services of a skilled engineer, and to have the fuel economy of the two-cycle Diesel. One of the new types is direct reversing, and the other is double-acting. The first pair of the former type to be completed were eight-cylinder machines of 600 h.p. each. The latter type is to be built in four- and six-cylinder models and up to 500 h.p. per cylinder.

The exhibit of the Driggs Ordnance Co., of New York City, in Section D, consists of a one-pounder gun and ammunition for patrol boats and a six-cylinder 4 x 6-inch 40 h.p. Silent Valve-Driggs marine engine which is shown for the first time. This motor incorporates a rotary valve of comparatively simple design which is stated to overcome all the evils which have hitherto marred motors of this constructional type. In the Silent Valve-Driggs construction, the valve runs at all times with a clearance between itself and the seat equal to a film of lubricating oil. This clearance is maintained by a positive automatic adjusting mechanism whose design is such that it requires a given torque to drive the valve. Anything calling for increased driving effort (such as expansion of the valve) will cause the valve to lift from its seat until the torque required is normal, the valve and its seat being tapered. As an example, suppose the valve expands slightly due to heating by the exhaust gases. As the valve starts to expand, it causes the oil film between itself and the seat to be reduced, and thus calls for increased driving effort. This slight increase actuates the adjusting mechanism, so that immediately the oil film, and consequently the clearance, becomes again normal.

The silent valve is so designed that one valve controls the inlet and exhaust functions for two cylinders. This simplifies construction, and also leads to increased economy and efficiency. The incoming cool gases encounter the surfaces warmed by the hot exhaust gases, thus increasing the fuel economy and simultaneously cooling the valve. A simple and economical method of valve lubrication is employed, the supply of oil to the valve being controlled by the valve-adjusting mechanism so that there is only enough oil to maintain the film of practically infinitesimal thickness between the valve and its seat. The ports in the valve are so arranged that the incoming gas passes through the center of the valve and enters the cylinder through a

The 1917 Motor Boat Show

radial port, while the exhaust gas passes out through a port in the side of the valve. By this arrangement the incoming gas is warmed and the valve is cooled.

The Van Blerck Motor Co., of Monroe, Mich., has confined its exhibit this year entirely to engines. In the past this company has usually shown a Van Blerck-powered boat of unusual fame, but the new policy has been entered into to enable visitors at the show to have ample opportunity to view the engines. Altogether, there are seven motors on display, as follows: Four-, six- and eight-cylinder engines in the 5 1/4 x 6-inch size developing 85-95, 100-135, 135-175 h.p. respectively, and one motor each of these sizes in the 6 x 6-inch model developing respectively 85-105, 135-160, and 165-215 h.p. Then there is a six-cylinder 6 x 6-inch machine with a three-to-one reduction gear attached, as well as two large assortments of parts that enter into the manufacture of Van Blerck motors. The exhibit is in charge of F. B. Sexton, general sales manager of the company, assisted by H. L. Sparrow, Horace Ward, and Leslie Huxtable, of the Boston, Washington, and New York offices respectively. Joe Van Blerck himself and A. H. Frost, chief engineer, will spend two or three days of the week at the exhibit.

The exhibit of Fairbanks, Morse & Co., of Chicago and New York, consists of a 60 h.p. four-cylinder 8 1/4 x 10-inch and a 75 h.p. three-cylinder heavy-duty 10 1/4 x 12 1/4-inch type C-O oil engine. These engines are declared to represent the greatest advancement in oil engines of their class and to embody refinements which are of special interest. The electric starter shown is a remarkable improvement over the usual method for starting heavy oil engines, as it cuts the starting time required down to a matter of seconds. The type C-O engine is built entirely in a Fairbanks-Morse factory, even the reverse gear being turned out from the company's shops. Reverse gears are used on all sizes up to and including 100 h.p., the larger motors being directly reversible by means of compressed air. The latest crankcase design shows a method of taking air into the base indirectly so as to muffle the usual noise made by air intake valves. This improvement is declared to add materially to the appearance of the engine, while making the operation practically as quiet as that of a steam engine.

The Sutfill-Madsen Co., of New York City, representing the Henrichs Magneto and Electric Co. and the Perfix Ignition Co., is on hand this year with increased space. Its exhibit of Henrichs magnetos and boat lighting outfits is sure to attract favorable attention. Henrichs magnetos have been on the market for the last eighteen years and are considered by many to be standard products for low tension ignition. The direct-connected lighting set of the Waterman Motor Co. is also an attractive feature of the display. This is the standard 110-volt set designed to run continuously if so desired and to have perfect regulation. Besides the other lines which are being shown, this company is exhibiting its own Apex products, among which is the new Apex deck plug which is gotten out as a thoroughly water-proof plug which is accessible and easily installed.

Probably the most interesting feature of the exhibit in this space is a display of the Apex motor boat wireless outfit designed to operate on a 6-volt storage battery and to send to a distance of 10 to 15 miles. Still another interesting device is an automatic signal which rings a bell and illuminates a bulb on the switchboard if through any cause one of the running lights of a motor boat ceases to burn.

Geo. B. Carpenter & Co., of Chicago, Ill., are exhibiting a line of Kainer steering gears, showing the many different installations possible with these gears, and are also displaying such marine equipment as the Carpenter electric searchlight, searchlight control, new cast bronze dome light, electric running lights for Classes 1, 2 and 3 boats, combination post light, and a line of Cummins patented universal shaft logs and stuffing boxes. A new article of Carpenter equipment which will probably meet with very favorable consideration is an extension berth which makes it possible to equip a boat of limited cabin space with a full size spring and bunk that is equal to the best. This berth can be installed in complete boats as well as in craft that are under construction. It takes no additional space when not in use, as it serves the purpose of a seat.

Space No. 41 is occupied by Berry Bros., of Detroit, Mich. While this concern has on hand samples of its various marine varnishes, floor waxes and enamels, its principal exhibit is one which should attract attention more for its novelty than because it bears any relation to the marine game. This is a glass case of a number of unusual things on which Berry's finishes are used, including straw hats, shoes, hairpins, chocolate bon bons, Edam cheeses, umbrella ribs, automobile parts, etc. George Brandt, foreman finisher of the concern, will be in charge throughout the week.

Chas. P. McClellan, of Fall River, Mass., has taken space 44 and is showing typical articles from his line of motor boat tops, spray hoods, boat cushions, etc. Mr. McClellan has specialized for a long time in the production of articles which will protect the boatman from the elements, whether he is comfortably seated in the cockpit of his craft or has uncomfortably fallen overboard from it.

The American Manganese Bronze Co., of Holmsburg, Pa., is displaying a complete line of Dyon standard screw propellers from 10 to 36 inches in diameter in all models, this being the first time that these wheels have been shown to the public. A rather unique display, showing a propeller turning over in water and designed to demonstrate the high efficiency of these new propellers, will be one of the leading features of the exhibit. The company is also showing photographs of some of its large Spar's propellers, which are manufactured for some of the leading ship building concerns—propellers having diameters of 17 and 18 feet and weighing from 15,000 to 30,000 pounds. In addition, samples of this company's various bronzes, especially Tensilite, are being shown. Tensilite is a metal which is especially fine for marine engine bed plates and crankcases.

The Chicago Varnish Co., of New York City and Chicago, Ill., is occupying booth 35 and is making its usual beautiful display of varnishes and enamels. This concern has added a Supreme marine paint to its line, and is now ready to supply everything from keel to truck for a motor boat or a big ocean liner. Navalite is perhaps the best known preparation of this concern, having been used on many of the America's cup defenders.

The exhibit of the Debevoise Co., of Brooklyn, N. Y., emphasizes this concern's De-co marine white paint for use on all types of boats. The makers inform us that this paint is every year gaining in popularity because of its being a white that stays white and because it fills the need of builders and owners for a paint that will not peel, crack or blister. The company is showing, of course, its other topside paints as well as its Fulton brand of copper paint for the prevention of marine growth.

The A. S. Campbell Co., of Boston, Mass., has on exhibit a full line of electrical specialties and accessories for use on all kinds of craft up to 60 feet in length. One of the features of the exhibit is the famous Cello Wire-less running lights, which have met with great success among the trade because of the features which make them water-proof and free from short circuit troubles. These lights may be run on one dry cell, on a 6-volt system or on any voltage desired. They are made for the three classes of motor boats. Another item of interest at the Campbell booth is the Cello combination flagpole, which has wires running through the center and is declared to be water-proof. This new outfit costs less than the regulation stern lights, operates on one dry cell and is made to comply with the Government requirements. In addition to the above there is a complete line of searchlights and interior lights as well as outfits consisting of switchboards, dynamos and storage batteries.

The Delco-Light plant, which is shown by the Domestic Engineering Co., of Dayton, O., in space 15, is a newcomer at the New York show, but is one, it is thought, which will command instant attention and respect. This plant was developed by the Delco Co., of Dayton, O., and embodies the best design and construction learned from experience in the automobile field. It is a direct-connected outfit having a one-cylinder four-cycle engine with crankshaft mounted on roller bearings. The engine is splash-oiled and air-cooled, and can be operated on either gasoline or kerosene without changing the carburetor. An advantage of the air cooling attachment is that it takes care of the ventilation of the room in which the outfit is installed, accomplishing this by drawing into the cooling system the air and vapors of the compartment and exhausting them overhead through a port or ventilating funnel. The Delco-Light plant will care for from fifty to sixty lights and a searchlight may be operated, while the batteries which are furnished with the outfit provide current for the operation of the electric starter for the main power plant of a boat.

Included with the Delco-Light exhibit is a line of Golden Glow searchlights. One large lamp with a power of projection for over half a mile should prove especially attractive.

The Billings-Chapin Co., of Cleveland, O., has been assigned space 14 and in its exhibit U. S. N. deck paint occupies an important place, while the company's anti-fouling copper paint and U. S. N. marine greens and U. S. N. marine white and tints are also in evidence. Some attractive new shades for boat bottoms, decks and cabins are shown in the marine greens and anti-fouling copper marine paints. These shades have been inaugurated because of an unceasing demand for them. Sample panels showing the finish of these products on wood, color cards, an attractive combination of paint cans, and other features lend snap to the display and in the center of the exhibit there is an attractive display sign in motion.

The Verrier, Eddy Co., of New York City, is exhibiting a representative line of Lathrop motors manufactured by the J. W. Lathrop Co., Inc., of Mystic, Conn. This comprises the following two-cycle engines: Single-cylinder, 3, 4, 5, 6, and 7 h.p., and two-cylinder machines of 10, 12, and 14 h.p. There are also, in the four-cycle type, a 12 h.p. two-cylinder machine, a 21 h.p. three-cylinder, and a 28 h.p. four-cylinder engine.

Edward Smith & Co., of Long Island City, are making an attractive display and demonstration of Spar Coating and Marlinite. In addition to color panels the concern is showing an attractive marine scene which serves as a background for a large tank of water on which floats a miniature speed boat finished with Smith products. There is also a glass aquarium in which floats a bell buoy finished with Marlinite, demonstrating its water-proof features when submerged in water. A third prominent feature is a hollow spar mast (varnished with Spar Coating) from which flies the company's pennant. The booth is in charge of the following representatives of the Smith firm: George A. Rogers, J. Frank McBride, Capt. Gus Lambert, A. G. Brooker, J. Luther Koll, and George C. Clark.

The exhibit of the Splittorf Electrical Co., of Newark, N. J., and the eastern branch of the Sumter Electrical Co., of Chicago, Ill., comprises the following features: A motor boat lighting outfit in operation, consisting of dynamo, automatic indicating cut-out and battery; a low tension magneto in operation under water; a twelve-cylinder magneto run continuously to show the production of twelve sparks; a demonstration stand exhibiting a complete low tension make and break magneto testing device; a complete display of these concerns' motor boat accessories, including hydrometers, voltmeters, ammeters, and spark plugs. In addition there is a four-cylinder magneto with starter coupling, the coupling being so attached to the magneto and so adjusted that it will produce a spark sufficiently hot to start an engine however slowly the flywheel may be turned.

The Paragon Gear Wks., of Taunton, Mass., has taken two spaces at the Palace, where the well-known Paragon reverse gear will be very much in evidence. The Paragon speed gear is on display and should attract more than ordinary attention inasmuch as it is the type of gear that was used on the motors installed in the famous mosquito fleet of submarine chasers and has been considered the last word in reverse gear construction. Other models of the regular Paragon line are shown, and half of the display space is being put at the disposal of motor builders and other customers who desire to look over blueprints and details of Paragon construction.

The E. J. Willis Co., of New York City, has taken spaces 79 and 81 on the mezzanine floor just opposite the main elevators on the north side of the Palace, and is exhibiting a line comprising motor boat hardware and electric fittings for lighting purposes. One of the special features is the Little Giant stern light for Class 1 and Class 2 boats. This fixture is made of polished brass and is fitted with a triplex lens. It has a 6-volt 4 c.p. Mazda bulb with Kdiawan base and can be operated on a 6-volt storage battery or on five or six dry cells. Other features of the exhibit include a line of auto steering manufacturers by the W. S. Hall Co., of Rochester, N. Y.; Bryant & Berry propellers and Yankee mufflers.

The Smith-Meeker Engineering Co., of New York City, has been awarded spaces 27 and 28 in the balcony and in connection with the Edison Storage Battery Co. is exhibiting all types of Edison batteries for ignition, lighting, and power for all kinds of pleasure craft ranging from the smallest runabout up to the largest yacht. The company will also exhibit various types of arc and incandescent searchlights, together with switchboards and other articles of electrical equipment. A special feature of the display is the new Matthews automatic plant operating in conjunction with the Edison storage batteries. This is an entirely new piece of apparatus and is one, it is thought, which will create a good deal of favorable comment. Both Mr. Smith and Mr. Meeker will be in constant attendance at the show and will be glad to dispense whatever information is desired along electrical lines.

By far the most important article on exhibition at space 57, occupied by the Ericsson Mfg. Co., of Buffalo, N. Y., is the new E-41 Berling magneto for four-cylinder motors. This latest addition to the Berling magnetos is of the completely enclosed water-proof type, yet it is so designed that all parts which should be easy to reach for adjustment or cleaning are readily accessible. The distributor instead of being at the driving end as on the A and B types of Berling magneto, is on the interrupter end. The brushes are on the distributor instead of on the distributor finger, this design doing away with the possibility of a collection of carbon dust on the distributor and consequent firing in the wrong cylinders. The distributor finger is easily removed after taking of the distributor block. The interrupter is of the type that is used on all Berling magnetos, having cam on the integral part of the cam housing that cannot become loosened. The collector brush holder can be removed for inspection of the brush by simply taking out two screws that hold the upper portion of the driving end in place. The magneto has been designed to provide a wide margin between the electrical requirements actually necessary and those embodied in all parts subject to electrical stress. It is made in both the independent and dual types, and a dual magneto is supplied with a combined coil and switch of the dash type.

Other types on exhibition are the A and B models for one-, two-, four- and six-cylinder motors, and the large D and DD types of single-spark and double-spark magnetos which have been used so generally during the last two seasons on high-grade marine motors. Another feature of the display is one of the new six-cylinder Ericsson battery ignition systems.

A newcomer at the show among the ranks of the accessory manufacturers is the Du Pont Fabrikoid Co., of Wilmington, Del., which is on hand with an attractive exhibit in space 85 on the mezzanine floor. This concern is the manufacturer of Fabrikoid, which is described as being the highest grade of artificial leather manufactured and superior in every respect to coated split leather, and the exhibit includes this Fabrikoid as used for the upholstery of motor boat cushions, etc. Another feature is Raynite, a top material of unusual excellence. Raynite goods are used not only for the covering of boat tops, but for spray shields, etc.

The feature of the exhibit of the Hyde Windlass Co., of Bath, Me., at the show this year is a duplicate of the Hyde turbine type propeller used by the record-breaking Miss Minneapolis, but a full line of the three types of Hyde propellers is also on display. While the turbine type of Hyde has given such excellent service on speed boats, it is not a speed propeller exclusively, but is fully suitable for use on runabouts, cruisers and working boats. The type already mentioned is made in an extremely wide range of sizes, making it possible to secure the correct propeller for any type of hull, and the wheels are of accurate pitch and balance.

The No-Weed Hydres, which are shown in a full assortment, have proven a boon for motor boatmen who have to operate in waters filled with weeds, eel grass, and other marine growths. The price of the No-Weed is a trifle more than that of the regular type Hyde propeller, but it is said that the feeling of assurance one has that his motor will not stall on account of a weed-fouled wheel is worth many times the difference in cost.

The Gale propeller, the youngest member of the Hyde family, is put out as a good low-priced wheel. Gale wheels are not made of the highest grade of bronze as are the other two types and are not as expensively polished, but they are not, therefore, guaranteed in regard to breakage or balance. While the manufacturers do not recommend them for high-speed work, they will undoubtedly give good results on slow and medium duty service. As Gale propellers are cast from regular Hyde turbine type patterns, the correct diameter and pitch are assured, and there is the same range of sizes to select from.

The 1917 Motor Boat Show

L. O. Koven & Brother, of Jersey City, N. J., are at hand at the Palace with an exhibit which compares more than favorably with their displays of other years. They are showing typical examples of their air and fuel tanks in galvanized iron and copper, as well as other accessories for the marine trade.

Of particular interest is the exhibit of Cutting & Washington, Inc., of Cambridge, Mass., which includes a one-half kilowatt transmitter and receiver in actual operation, for the more progressive motor boatmen are now equipping their craft with wireless apparatus.

The present transmitter is a combination of the Chaffee system of impact excitation and the Cutting & Washington tone system, which goes to make a most efficient set. The transmitting apparatus is mounted on a neat panel measuring $14\frac{1}{2} \times 18\frac{1}{2} \times 13$ inches and weighs but 47 pounds. The motor-generator set supplied with the transmitter, including its starter, weighs 128 pounds and occupies little space. With a fair sized aerial this transmitter is said to have a range of from 100 to 300 miles, depending on local conditions. The receiver is also of the most approved design, and mounted in a compact cabinet. It weighs 12 pounds.

Designed especially for use on the small motor boat, the Cutting & Washington one-half kilowatt transmitter and receiver is practically noiseless in operation, the only audible feature being the hum of the motor-generator when the load is applied. Because of the low voltage employed in the oscillating circuit the aerial system requires no elaborate insulation, such as is required with the usual spark systems. Lastly, the apparatus is devoid of intricate features which mark the conventional wireless apparatus; consequently, its simplicity permits of its operation by anyone possessing a knowledge of the code.

This exhibit should appeal to the visitor as a commendable exposition of efficiency and ingenuity in modern engineering methods.

An electrical demonstration of the efficiency of Columbian propellers is shown in the exhibit of the Columbian Brass Foundry, of Freeport, L. I., in spaces 54 and 54-A on the mezzanine floor. This illustration is very convincing and will surely attract attention. The Columbian exhibit consists of a beautiful velvet-covered pyramid showing all types of Columbian propellers, as well as displaying samples of rudders and other Columbian accessories. One of the new things exhibited this year is the Columbian flexible coupling, designed to meet the demand so long existing for a real flexible coupling, durable and impervious to de-

terioration through the action of salt water in the bilge. The first sample of this coupling, submitted to a customer for his opinion, was purchased on the spot. This coupling will be demonstrated at the show.

The H & N Carburetor Co., of New York City, is showing one of the kerosene carburetors which it has perfected in the last year fitted to a four-cylinder engine, and in addition is displaying a full line of samples of both the gasoline and kerosene carburetors. The company purposes building in the near future six special carburetors for Commodore Fugh's Disturber, and it hopes by means of them to increase the speed of this hydro to 76 m.p.h. The kerosene carburetor of this company is declared to be thoroughly practical, while its gasoline carburetor is stated to be the most powerful and economical one on the market.

Higgins & Selter, of New York City, have been fortunate in securing a booth in an advantageous position and are making their usual attractive display of yacht china and glassware. Representative examples of the products of this firm are shown and there are also several novelties which will be sure to attract the motor boatman. This concern has just completed a very successful year and looks forward with confidence to a still more prosperous season in 1917. F. R. Sands, who has been in charge of the Higgins & Selter exhibit for several years, will again be on deck and will be most pleased to quote prices and give information regarding the work of his concern. He informs us that the greatest accuracy is observed in copying private signals, club flags, etc., for the decoration of yacht china, and that he is able to offer table ware in all styles and prices ranging from small sets for the little cruiser up to the most elaborate services for the finest yachts. He states that no order is too small and none too large for the painstaking attention of his firm.

Chas. D. Durkee & Co., of New York City, have found it necessary this year to take more space than ever in order to give their exhibit enough room to do it full credit, and are occupying the entire Dupew Avenue side of the mezzanine floor. By all means the most important feature of the exhibit is the big tank in which the Divinhood is exhibited in action. This tank measures $8 \times 4\frac{1}{2} \times 6$ feet high and involved an outlay of \$1,000 for its building and erection. The tank will be in use through the week from morning until evening to exhibit the advantages of the Divinhood, and demonstrations of various types of Durkee life-saving equipment will also be given. Al-

together, the Durkee exhibit occupies 1,000 square feet of floor space, and distributed about this section will be found all kinds of hardware for wet places. Chas. D. Durkee and Wm. H. Durkee expect to be on hand throughout the week to meet their old friends and form new acquaintances.

The Bosch Magneto Co., of New York City, is occupying its usual large space on the mezzanine floor and is showing an even half dozen marine engines of various types completely fitted with Bosch apparatus, so that the motor boatman may have a thorough understanding of how the Bosch equipment fits to the type of engine in which he is interested. Then, too, as in former years, the exhibit includes individual apparatus so arranged that it can be put into operation by the visitor; thus, the entire exhibition offers an educational opportunity for those who are interested in ignition, lighting and starting apparatus.

In addition to the Bosch magneto, which is on display in its various types, the company is showing its latest product, the Bosch magneto-dynamo. This new apparatus might be termed a combination of two units using a common drive and providing current for ignition and for lighting, each being produced, however, by a separate armature. Representative Bosch starters and Bosch lighting systems are also on display.

The exhibit of the Pyrene Mfg. Co., of New York City, comprises Pyrene extinguishers in brass and metal finish and all the latest types of brackets. J. P. Maloney, manager of the New York office, has charge of the exhibit and throughout the week will have the assistance of men who have made a special study of fire prevention. They will be able to advise visiting motor boatmen just what type of fire protection the craft of each requires.

The Valspar exhibit of Valentine & Co., of New York City, comprises a series of marine varnish tests. The Valspar submarine occupies a prominent position and shows clearly the difference between Valspar and other marine varnishes. The central feature shows the effect of running water on various varnishes. The result of this test is the same as though the varnishes were on the exterior of a rapidly moving boat. A set of water and weather panels, tested over a period of six months, is designed to show the superiority of Valspar for exterior work, and a comparative set of panels shows the greater severity of the water and weather test over the straight weather test. The exhibit is completed by handsome sets of panels showing Valspar over different woods, enamel colors, and marine specialties.

An Unusual V-Bottom Express Cruiser of 106-Foot Length

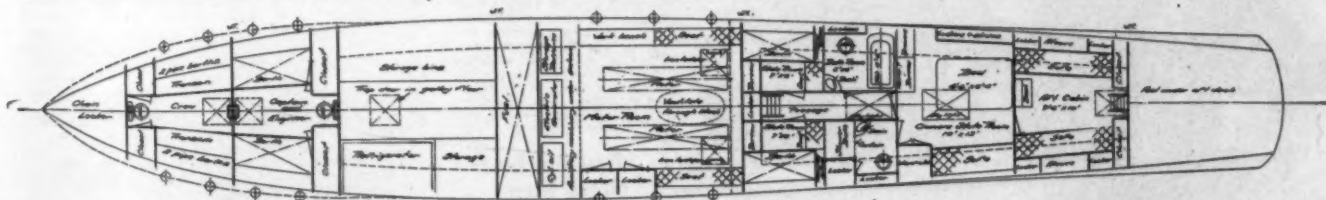
ONE of the most attractive designs turned out in recent months is that of a 106-foot V-bottom express cruiser prepared by Wm. H. Hand, Jr., of New Bedford, Mass., for a prominent New York yachtsman. Her arrangement plan is shown below, together with a wash drawing by Worden Wood. It is the designer's opinion—and we agree with him—that the general appearance of the craft is

unusually good, while the interior quarters have been worked out most effectively.

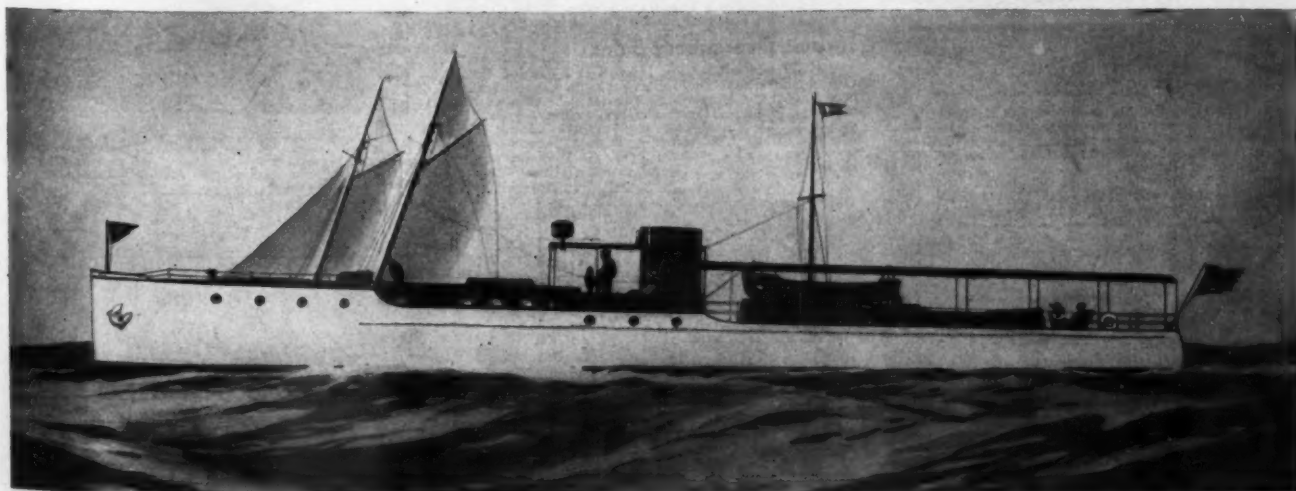
As may be seen from the plan, they are arranged with a large forecabin for the crew, followed by a section given over to the galley and general storage, with the motor compartment practically amidships. The owner's quarters are aft and comprise a starboard stateroom with connecting bath, port room

with toilet adjacent, the two staterooms being separated by a central passage; a large stateroom for the owner aft, and an after cabin. The dining saloon is arranged forward, and there is ample deck space.

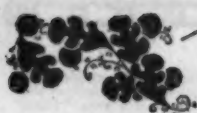
The contemplated power is a pair of eight-cylinder Duesenberg motors operating at 1,200 r.p.m., which, it is expected, will develop a speed of 22-24 m.p.h.



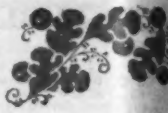
This big express cruiser is laid out with the crew's quarters forward, the motor room amidships and the owner's apartments aft. The design calls for four water-tight bulkheads



As shown in a wash drawing by Worden Wood, the exterior lines of this new Hand design are exceptionally pleasing



Yard and Shop



Van Blerck Sales Office Moves to New York

The general sales office of the Van Blerck Motor Co., of Monroe, Mich., was moved to New York City at the beginning of the year and opened for business on January 2 in rooms 1001 and 1002 of the Hecksher Building, 50 East Forty-second St. The new offices occupy 800 feet of floor space and are fitted up in a thoroughly up-to-date manner, while a very large number of Van Blerck parts are carried in stock so as to assure the promptest kind of service to the customers in the New York territory. F. B. Sexton, director of sales, is in charge of the offices, assisted by a city salesman, two service men and the necessary office force. The head service man is Joseph Messina, who has had several years' experience with high-speed engines, and the city sales are looked after by Leslie Huxtable, who has been connected with the Van Blerck Motor Co., in a similar capacity for the last year.

The Van Blerck Motor Co. is also on the point of opening a branch in the Oliver Building, in Boston, Mass. H. L. Sparrow, manager of the New York office during the past year, will be in charge, and J. L. Trenholm, as head service man, will assist him. It is also intended to open a Van Blerck branch which will be a combination sales and service station in Chicago on or about the first of April.

Scout, a 30-Foot Runabout

An interesting photograph reproduced on this page shows the cozy summer home of Frederick Redpath, of Montreal, Quebec.

As Mr. Redpath's dwelling is situated on one of the Thousand Islands in the St. Lawrence River, it is not surprising that one of his most useful possessions is a motor boat. The craft shown in the picture is a 30-foot runabout which is capable of a continuous speed of 20 miles per hour. The boat was designed and built by the Gilbert Motor Boat Co., of Brockville, Ont., and is representative of the type of high-class runabouts in operation in this district. A 20-35 h.p. Sterling motor is installed.



The summer home of Frederick Redpath on one of the Thousand Islands, with his 30-mile Sterling-powered runabout in the foreground.

Shipmates Three

The owners of the big motor yachts do not have a corner on the pure joy of motor boating, for thousands of owners have learned for themselves that just as much air, spray, health and downright fun may be gained through the possession of a tiny 14-footer with a handy little engine doing the real work without any fuss. Such a one is W. O. Bixler, who has a summer home at Lake Hopatcong, N. J., and his captain and chief engineer, who may be seen at their proper stations in the accompanying illustration, agree with him in every particular. The third shipmate of the trio is the popular little 3 h.p. Gray Leader. Mr. Bixler uses three other Gray motors in fishing boats.

Buffalo Wants Owners' Names

The Buffalo Gasoline Motor Co., of Buffalo, N. Y., is anxious to obtain the names and addresses of all Buffalo users with a view to supplying them with certain literature which will be of great value to them in connection with the operation of their engines. By request we are, therefore, asking all owners of Buffalo motors who read this notice to send their names and addresses to the home office and to mention the sizes of Buffalo engines which they operate.

Aeroplane Costing Less Than \$500 Promised

The Carter Bros. Aeroplane Co., of Detroit, Mich., and Hyattsville, Md., have designed a new type of motor-driven seaplane which is declared to embrace many novel features. Preparations are now being made to produce these craft in such quantities that the price will be under \$500. The Carter seaplane,

while extremely light, will be capable of carrying two or three passengers.

Johns - Manville Co. Gives Employees 10 Per Cent Bonus

Every employee of the H. W. Johns-Manville Co., of New York City, who had been with the company for a year or more, was gladdened by the receipt of a Christmas greeting consisting of a bonus equal to 10 per cent. of his year's salary. This action was prompted by the very satisfactory earnings of the company in 1916, and by the splendid service rendered by the J.-M. employees.



The skipper and engineer of this 14-footer are on the friendliest terms with their 3 h.p. Gray motor. The officers are the daughters of W. O. Bixler, of Lake Hopatcong, N. J.

cylinder engines; Logan G. Thomson, of Hamilton, O., 48-foot Great Lakes limousine runabout—one eight-cylinder motor. The Albany Boat Corporation has just delivered to James Deering, of Chicago, a 42-foot displacement runabout which is powered with one of the 300-400 h.p. Duesenberg eights, while the same firm has closed a contract with James McAleenan for a 48-foot express cruiser to be powered with one of the eight-cylinder machines.

New Gray Agents for Winnipeg

The Gray Motor Co., of Detroit, Mich., has appointed James H. Neil & Son, boat builders, as distributors for Winnipeg, Manitoba, and vicinity. This firm of builders specializes in runabouts and speed craft and has turned out a large number of boats of these types. The Neil factory is located at 274-278 Manitoba Ave., Winnipeg, while the boat house, storage yards and wharves are situated at Burroughs Ave., on the Red River. In spite of the unusual conditions prevailing in Canada which put boating at a rather low ebb, the James H. Neil & Son Co. expects to enjoy a profitable season next year, and to secure orders for placing a large number of Gray motors in the new boats which it will construct.

Clara S

It is not every owner who would force his boat through eight inches of solid ice in order to get to the fishing grounds, but the owner of Clara S, which is shown in the accompanying illustration, keeps his craft in service the year round, and quite frequently requires her to do the heavy work of an ice breaker. Up to now she has successfully performed this task and her creditable performance through a period of six years is due very largely to the excellence of the motor with which she is powered.



A 27-foot V-bottom runabout built by George Wilson, Jr., of Christiansburg, Norway, agent for several prominent American motors. This boat is powered with a 48 h.p. Waukesha engine and attains a speed of 20 knots.

Petrelli Leaves Reverse Gear Company

Announcement was recently made by the Snow & Petrelli Mfg. Co., of New Haven, Conn., that Joseph Petrelli had ceased to be an officer or employee of that concern, dating from January 1. It was further announced that the retirement of Mr. Petrelli from the company did not affect its exclusive right to manufacture and sell the complete line of Joe's gears, safety rear starters, clutches, etc. Modern facilities, engineering experience, and up-to-date improvements have combined, it is stated, to place the 1917 models of this line more conspicuously than ever in the front rank.

New McQuay-Norris Men

The McQuay-Norris Mfg. Co., recently informed us that it had added three mechanical engineers to its sales force in the field. These are Messrs. E. C. Coleman, Carl E. Finch, and H. R. Souther.

Recent Duesenberg Sales

We are advised by the Loew-Victor Engine Co., of Chicago, Ill., that the following orders have recently been placed for Duesenberg engines: L. Gordon Hamersley, 55-foot Hand express cruiser, guaranteed speed of 35 miles—two eight-cylinder 300-400 h.p. engines; Henry F. Sinclair, 60-foot Hand cruiser—two eight-cylinder motors; Wm. A. Wallace, of Nantucket, Mass., 48-foot Hand express cruiser—two six-



Mildred & Grace is a 35-footer owned by S. W. Eccles, of New York City. Powered with a Model F. 52x Sterling motor, she is now exploring the waterways of Florida.



An attractive 15-foot motor rowboat which has just been introduced by the Water Craft Co. Its tumblehome stern is a feature which adds rigidity to the boat and greatly reduces vibration.

This is a 50-55 h.p. two-cylinder heavy-duty semi-Diesel Kahlenberg motor, which is operated almost entirely on kerosene. When the photograph was taken, Clara S was making her way out from the basin of the Kahlenberg Bros. Co., at Two Rivers, Wis., and, as may be seen, the boat has been forced nearly eighteen inches out of the water at the bow. Clara S is 50 feet in overall length by a beam of 14 feet, and she travels at a rate of 11 miles per hour.

New Outboard Motor Boat

The Water Craft Co., of 221 Fulton St., New York City, has made a new step in the small boat field by the production of a 15-foot outboard motor rowboat which is constructed with a tumblehome stern. This feature is declared to add very greatly to the stiffness of the after section of the boat and to eliminate much of the vibration where single-cylinder motors are used and all of it where two-cylinder motors are employed. The boat will safely and comfortably carry eight persons having an aggregate weight of 1,500 pounds. The construction and finish are first class in every detail and two pairs of oars and oarlocks are furnished as part of the regular equipment. One of the illustrations on this page represents this pleasing little craft equipped with a two-cylinder Kohan motor, which, as may be seen, is driving her at a nice speed.

A Lively Michigan Outfit

One of the illustrations on this page reveals an outfit which is truly native to the state of Michigan, as it was designed, built and motored by Michiganians. It is a 21-foot V-bottom runabout with 5-foot beam, designed by John L. Hacker, of Detroit, built by the Valley Boat & Engine Co., of Saginaw, and powered with a four-cylinder, four-cycle 20-24 h.p. Model D Gray motor, and it will be used next season by a prominent Michigan enthusiast. It was launched in December—which means that the owner will be sure to have his boat early in the spring whenever he wants it. If there were more cases of foresight of this kind, the boat and engine builders would be, on the whole, a happier aggregation of men.

On the trial trip, the Gray motor gave its hull a speed of 18½ miles an hour over a measured mile course. It is expected that when a suitable propeller

has been tried the craft will easily make more than 20 miles an hour.

A Burma 34-Footer

Types and styles of foreign boats are always of interest to American motor boatmen, and especial interest attaches to Dixie, a 34-footer belonging in the port of Tavoy, Lower Burma, recently completed for the Egan United Rubber Estates. Dixie has a good



A 21-foot V-bottom Hacker runabout which was launched in December for a prominent Michigan yachtsman. It is powered with a four-cylinder, 24 h.p., Model D, Gray motor, and on the trial trip showed a speed of 18½ m.p.h.

American name, but she is a far cry from her namesake which a few years ago achieved fame for herself in American waters. She is fitted with a commodious cabin forward as will be seen in the accompanying illustration, and has sleeping accommodations for two. Aft the cabin is a large hold having a hatch measuring 8x4 feet, and abaft the hold is the engine-room in which a 28-36 h.p. Red Wing Thorobred motor is installed. On deck, following the engine compartment, is a skylight with a cooking range on the port side and a toilet to starboard. An awning is fitted over the cabin deck. On her trial trip Dixie developed a little over 8½ knots, and she has made excellent weather of several heavy squalls in Tavoy Harbor.

Kermath Racing Efficiency

The Kermath Mfg. Co., of Detroit, Mich., has received through its New York agents, Bruns, Kimball & Co., the following letter which tells of the efficiency of a Kermath power plant in one of the races last fall at Cape May. The letter, which is from the boat building concern of Eli Townsend & Son, of Stone Harbor, N. J., runs as follows: "I feel that I should express to you in behalf of the owner, Arthur C. Gilmore, as well as for myself, our heartfelt thanks for your splendid promptness in rushing the 20-24 h.p. motor to us in time to enter the finals at Cape May on September 2. You will recall that I promised that Silver Heels II would win the championship and add fresh laurels to the Kermath. Well she did it and then some, with some speed still in reserve. It was a beautiful race with some mighty good boats in the class. The engine ran without a hitch—smooth as a watch—and did all that it was asked to do, and if there were any doubts as to the efficiency of the Kermath in a racing outfit, I think they must have been dispelled."

Conference of Independent Oil Men

The Independent Oil Men's Association, of Chicago, Ill., held its second eastern conference session at the New Willard Hotel, in Washington, D. C., on January 23 and 24. One of the most interesting topics which came up for discussion was that of the use of kerosene in internal combustion engines. Many interesting suggestions for the increased use of this fuel were put forward, and it is hoped that the work of the association will militate for a more satisfactory adjustment of the fuel situation from the consumer's point of view.

Anderson Makes Successful Run

The following message was received recently by the Anderson Engine Co., of Chicago, Ill., from Robert Ruxten, of the Dando Company, Philadelphia, Pa.: "Your engine brought us from New York to St. Augustine, Fla., without giving us any trouble or registering a miss." The motor referred to is one of the three-cylinder 7½x8-inch 37½ h.p. Anderson machines, and the manufacturing company informs us that it was naturally gratified upon hearing that one of its power plants had successfully endured a trying run of this duration.

Correction

Through an almost inexcusable error it was stated in a caption on page 34 of the January issue that Champion spark plugs are provided with Calorite cores. This was, of course, entirely contrary to the fact, and in justice to the manufacturers of the Champion plug and to the Hartford Machine Screw Co., of Hartford, Conn., we desire to call attention here to the fact that Calorite is a special insulating material originated and perfected by the latter concern, and used only in its famous Master plug.

Aerothrust Foreign Sales

We are informed that the Scripps Motor Co., of Detroit, Mich., has, after due consideration, decided to handle the products of the Aerothrust Engine Co., of La Porte, Ind., in foreign countries, and that hereafter all business of this nature will be conducted through the Scripps New York office, at 17 Battery Place. R. V. Warman, who is well known in marine engine circles, will be under full charge of this work, and, with his past record, it is needless to say that he will make a big success of it.

T. F. Day Takes Toppan Agency

The Toppan Boat Mfg. Co., of Boston, Mass., recently announced that it had appointed Thomas Fleming Day, Inc., as its New York agents for the sale of the celebrated Toppan boats. Captain Day, whose knowledge of boats is extremely extensive, thoroughly looked over the boat building field and concluded that the Toppan products were the ones which he could stand behind and recommend to his thousands of boating friends. His company will carry a full stock of Toppan boats in its new warerooms at 412 Eighth Ave., New York City.

J.-M. Branch in Des Moines

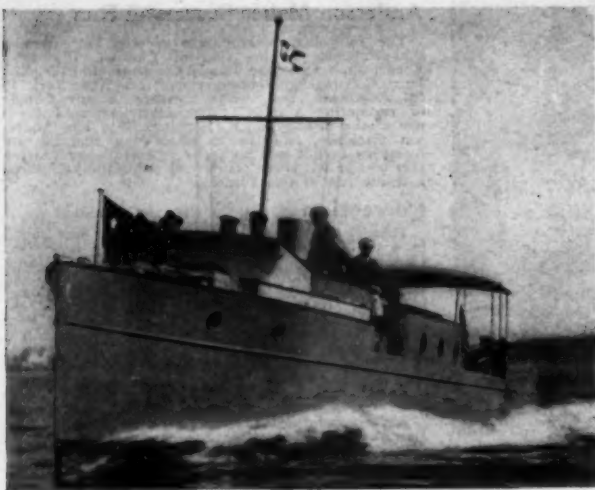
With the opening of its new office at 911 Walnut St., Des Moines, Ia., the total number of branches of the H. W. Johns-Manville Co., of New York City, was brought up to fifty-five. Practically every important city in North America now has a Johns-Manville branch. The management of the new office has been given to Wm. D. Roberts, who for a number of



Dixie, a 34-footer in use in lower Burma. Although her name and motor are American—the latter a Red Wing Thorobred—she doesn't look like anything you would see anchored off the N. Y. C.'s Glen Cove station.



A 14-foot V-bottom Moco duck model built by the Marine Equipment Co., of Los Angeles, Cal. She is equipped with a 7 h.p. Eagle engine, Carlyle-Johnson reverse gear, and air tanks at bow and stern.

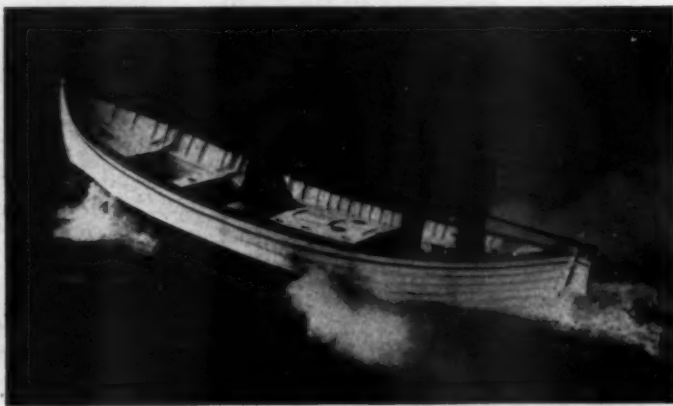


Ray Scout, a 46-foot patrol squadron cruiser, owned by Albert Geiger, Jr., of Boston, Mass. A Model F Sterling supplies the power—200 h.p., and the speed—25 m.p.h.

years has looked after the Iowa sales of this concern, and he will have under him a corps of salesmen and instruction men to give Johns-Manville Service throughout that section of the country.

Wisconsin Company's Extra Payment

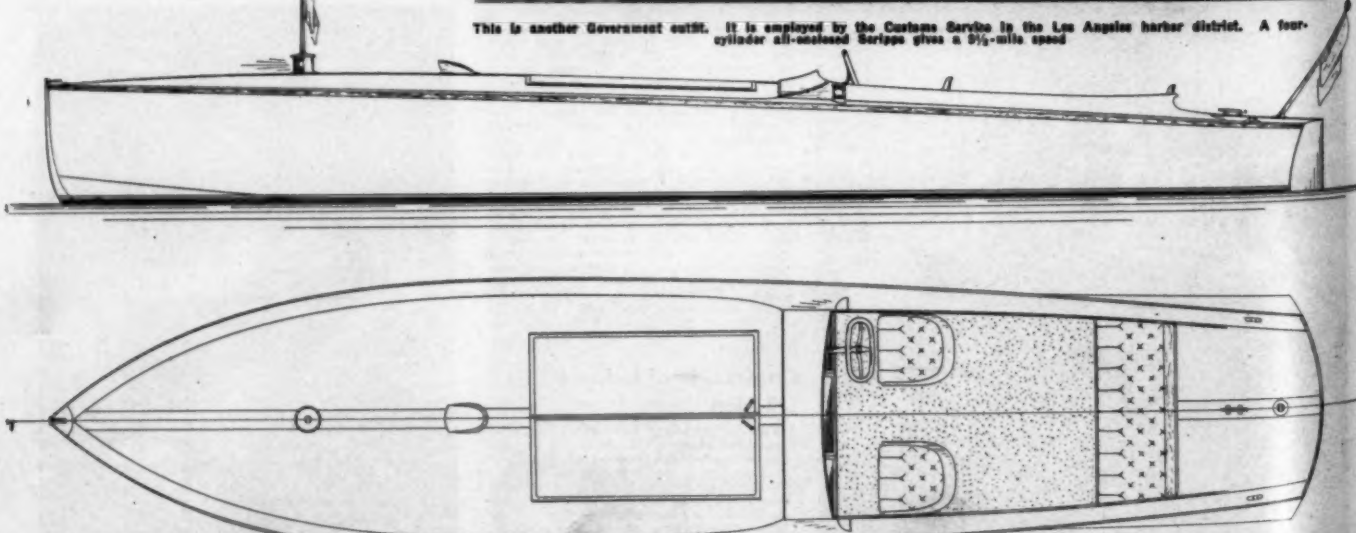
The Wisconsin Motor Mfg. Co., of Milwaukee, Wis., commencing with the first of the year, put into effect an extra payment plan which will benefit all employees working shop hours for the Wisconsin company on an hourly basis or on piece or premium rates. This praiseworthy plan which has been instituted as an effort to ameliorate the conditions imposed upon the body of workmen by the high cost of living necessities, also takes into consideration the fact that continuous service increases the value of the employee to the company. An extra payment of 10 per cent. on their total earnings for the year will be distributed to such employees as fall in the above mentioned category and who from the first of January continue in the employ of the company throughout the year. The bonus will be distributed in quarterly installments as follows: 2½ per cent. of the earnings for the first quarter, payable at the end of that period; 5 per cent. of the earnings for the first six months (less the sum previously distributed), payable at the end of that period; 7½ per cent. for the first nine months' earnings (less the sums previously distributed), payable at the end of that period; 10 per cent. of the earnings for the year (less the sums previously distributed), payable at the close of the year. By the working of this plan, an employee whose monthly earnings amount to \$100 will receive a bonus of \$7.50 at the end of March, \$22.50 at the end of June, \$37.50 at the close of September, and \$52.50 at the end of the year.



One of the McClellan type surfboats constructed by the Camden Anchor-Rockland Machine Co. for the U. S. Coast Guard. All are powered with two-cycle Knex motors built by the same concern.



This is another Government outfit. It is employed by the Customs Service in the Los Angeles harbor district. A four-cylinder all-enclosed Scripps gives a 1½-mile speed.



An attractive 28-foot runabout designed by John L. Hacker, of Detroit, Mich., for W. C. Randall, of Hamilton, O. This is a mahogany outfit with a guaranteed speed of 34 miles

making a total extra payment for the year of \$120. Various conditions of the plan have been worked out to take care of individuals who enter the employ of the firm at any time during the calendar year, and of those who leave the employ of the company through sickness or other unavoidable reasons. The plan will continue in effect for one year from January 1, 1917, and it is to be hoped that it will meet with the success which it deserves.

Missouri Oil Engines

The Missouri Engine Co., of St. Louis, Mo., is not offering anything new for the year 1917, as it has, instead of experimenting with new models, spent its time in the development and perfection of its existing oil engines. In a recent letter one of the officers of the company informed us that this concern had sold Missouri oil engines in Canada, England, Italy, Greece, New Zealand, Brazil, Peru and even in such out-of-the-way places as New Guinea and the New Hebrides Islands, and that from every hand there had come assurances that the motors were giving the utmost satisfaction. The Missouri people guarantee that their motors will run on one

Personalities

Edward W. Leahy

Edward W. Leahy, whose portrait is shown in this column, is the newly elected secretary and treasurer of the Albany Boat Corp., of Watervliet, N. Y. Mr. Leahy goes to the Albany company with a long, successful experience in the automobile industry behind him. The company with which he has cast his lot feels particularly fortunate in having Mr. Leahy with it, as he is a man with demonstrated business ability and is considered an unusually good business manager and accounting expert. The other newly elected officers of this company are L. L. Tripp, president, and A. N. Dederick, vice-president.



Charles B. Page Now with Loew-Victor

After negotiations covering several weeks, it was announced recently that Chas. B. Page, formerly of the Van Blerck Motor Co., has assumed control of the Loew-Victor factory in Chicago in the capacity of general manager. Mr. Page now has general supervision of all the departments of the factory, thus relieving N. G. Root, vice-president of the company, of many of the duties which he has endeavored to perform coincidentally with the management of the general sales of Duesenberg and Loew-Victor engines. Apropos of the duties of his new position and of the personnel of the Loew-Victor organization, Mr. Page wrote us recently as follows: "I find my associates in the organization are men of very exceptional experience and ability—each one an expert in his particular department. Moreover, I note a spirit of enthusiasm and teamwork which promises the very best of results. Notably of the organization, I must mention F. S. Duesenberg, chief engineer, who stands in the very front rank of marine and automobile motor designers. Mr. Root continues in active charge of the sales, and with additions to and perfectings in the engineering, factory and service departments, we expect to give him the backing which he so royally deserves. Mr. Harbeck is planning extensions to our line and manufacturing facilities. Their development, I believe, will be followed with great interest by the trade in general. The new Duesenberg motors are marvels of efficiency and simplicity. A careful investigation of tests already made convinces me that the motors are right."

Edward W. Leahy, newly elected officer of the Albany Boat Corp.



Wander, a little canopy-covered rowboat owned in Alabama and powered with a Ferro outboard motor

gallon or less of liquid fuel (kerosene, fuel oil, solar oil or crude) per horsepower per day of ten hours. One customer wrote that he was running a 14 h.p. Missouri oil engine for a full ten hours run at a total cost of 27 cents per day. Other features of these engines to which the manufacturers call attention are their freedom from starting troubles in all weathers, their freedom from danger, their continuous performance, and their ability to run on the lower grades of fuel.

Wagner-Hoyt Service

The Wagner-Hoyt Electric Co., of New York City, licensee of the Ward Leonard starting and lighting systems, is offering complete electric equipments for motor boats, consisting of generator, starting motor, battery or magneto ignition, storage batteries, switches, meters, lamps and cable. It is pointed out that the advantage of the Wagner-Hoyt system is that should repairs or adjustments of any part of the electrical equipment be necessary, they may be attended to without the confusion and delay which sometimes comes if a generator, for instance, is obtained from one source, a magneto from another and a storage battery from the third. Then, too, the company main-

Sterling outfit; Kiva, an 87-foot cruiser for Dr. Frank Landon Humphreys, of New York, to be equipped with two heavy-duty six-cylinder Sterlings; a 96-foot high-powered cruiser for a prominent Bridgeport yachtsman; an interesting 60-foot able patrol boat for Pierre A. Proal, of Red Bank, N. J., to be powered with an eight-cylinder 200 h.p. Sterling; Merry Sunshine, a 60-foot scout type cruiser for Otis H. Couper, of New York; Nancy, a 55-footer somewhat similar to Merry Sunshine for Felton Dent, of Philadelphia, Pa., to be equipped with an eight-cylinder Model F Sterling; a 50-foot houseboat cruiser for Wm. Freihof, of Philadelphia, Pa., and a 40-foot express cruiser for Albert Aschaffenburg, of New Orleans, La., to be powered with a 100 h.p. Van Blerck. There are many other interesting craft of various types and lengths which might be mentioned if space permitted.

Joe Fellows Takes on Gray

Announcement was recently made by the Gray Motor Co., of Detroit, Mich., of the appointment of the Joe Fellows Yacht & Launch Co., of Wilmington and Los Angeles, Cal., as the Southern California distributors of Gray motors. The Fellows company is one of the leading marine engine houses on the



Amos, 18-footer, declared to be ideal for rough water

it is promised that this exposition will get under way with all the swing of an old established affair such as the motor boat show. Representative aeroplanes and flying boats, motors, and equipment will be displayed, and there will be much of interest from the European and Mexican fronts to enthrall the public.

(Continued on page 70)

Why I Do Not Own a Motor Boat.

(Continued from page 7)

You cater to a technical and therefore limited market.

You should have had your Fords and Willys years ago.

You are foster-parents of theirs—the most amazing industry in all the world; you invented and developed the engine without which it could never have happened.

But because vision was not in your tool-chest you played a piker's game when you might have had—and can still have—this exhaustless continent for a limit.

When will you really get down to business—employ the irresistible power of publicity to truly nationalize your product?

When will you direct the attention of the daily press to a recreation, a convenience and a branch of transportation second only in importance and scope to the universalized car?

And, when, in the name of common sense, will you put your cards face up on the table and give a greenhorn some chance to learn some facts about your goods—details of construction and equipment—price and up-keep?

How can anyone know if he can afford to purchase the very article you most want him to have, while you persist in enveloping your proposition with mystery?

Be specific. Quit your blind ads—mention facts—figures—terms. Give us some information about your merchandise.

Be thinkers as well as tinkers.

Sell our imagination and we'll buy your boats.



A traveling repair shop, agency and advertising medium in one—the cruiser owned and used by J. W. M. Wheeler, of Orange, Conn. "Sweet are the uses of advertisement."

tains about 800 service stations throughout the world, and the user is never far from one of them. The Ward Leonard starting and lighting system is one of the oldest types in use to-day, and the excellence of its controller, due to the simplicity of its construction and its automatic operation, has been previously mentioned in this magazine.

J. Murray Watts Keeps Busy

The office of J. Murray Watts, of Philadelphia, Pa., reports a large volume of orders for plans for motor yachts and commercial motor boats. The following condensed list gives an idea of some of the more important craft which are either building or are soon to be built from Mr. Watts' designs: Consuelo, a 110-foot cruising yacht for J. Percy Barram, of New York City, to be powered with two 160 h.p. Speedway motors; 110-foot sea-going cruiser for Wm. D. Hurlburt, of New York, with twin-screw 200 h.p.

Southern California coast, and its connection with the Gray company for the handling of the latter's two- and four-cycle engines is one which is sure to rebound to the credit and profit of both concerns. Besides acting as distributor for Gray, the Joe Fellows company also takes care of the Southern California business of the Sterling and Atlas engines, and the company does marine engineering and naval architecture of the highest class. A full line of Gray engines will be kept in stock, and owners in this section of the country will have no difficulty in promptly obtaining repairs and replacements. The arrangement was consummated by K. Bradford Burnham, marine sales manager for the Gray Motor Co.

Aeronautical Exposition

The first annual Pan-American Aeronautical Exposition will be held at the Grand Central Palace from February 8 to 15, inclusive. While the first of its kind,

The Command of the Air and the Aerial Coast Patrol

(Continued from page 12)

that three, and possibly four, other powers possess similar weapons of offense.

The seaplanes of the Coast Patrol will furnish one of the most effective antidotes for the submarine. They will have two to three times the speed of the fastest destroyers, and will be able to see and follow a submarine when it is invisible to any surface craft.

The Aerial Coast Patrol is to provide a continuous picket line of seaplanes or flying boats fifty miles or more off shore, along our entire coast line, from Eastport, Me., to Brownsville, Tex., and from San Diego, Cal., to Cape Flattery, Wash., each machine traveling back and forth, back and forth, over its section or "beat"—a winged sentinel, forming a cordon, a continuous line of whirling shuttles, weaving a blanket of protection around the country.

The idea is to divide our entire coast line into sections of convenient length, say about one hundred miles. Each of these sections and stations will be equipped with four seaplanes. Each of these machines will carry a driver and an observer and will be equipped with light wireless apparatus, powerful glasses and a sensitive microphone. When in active operation the seaplanes in each section will take their position some fifty or one hundred miles off shore, and patrol their respective beats continuously back and forth, in clear weather 2,000 feet or more above the sea, from which altitude ships fifty miles distant may be seen. At night or in the fog, the seaplanes would, of course, sweep much lower, at all times themselves invisible to an enemy.

By means of the wireless, information as to the character, number and apparent destination of approaching ships will be transmitted to the shore station, and from there to Washington, whence, if the ships are hostile, orders will issue directing the movements of our fleet and the submarine squadrons for the preparation of the coast defenses and for the concentration of troops, if necessary, while reserve planes hurrying out will keep the approaching craft under continuous inspection while themselves invisible.

Such a system is a new departure. The like of it exists nowhere at present, and yet it involves no new principle, but is simply the utilization and multi-

plication of the known capabilities of a single seaplane.

Had there been such a system round the British Isles a year ago, the Lusitania horror would not have occurred.

Follow me a moment: One of these seaplanes is traversing its beat fifty to a hundred miles west of San Francisco and 2,000 feet or more up in the air. A ship or ships appear on the horizon fifty miles farther out. The powerful glasses are brought into play by the observer. His trained eye recognizes the number, character and course of the ships. The wireless crackles the information to the shore station. The shore station transmits it to the great government wireless station at San Diego. That station snaps it eastward across the Rockies. In a few minutes Washington knows all about it, and, if necessary, orders are flashed back to San Francisco, for whatever action is advisable.

Let us imagine it is war. This advance notice of the approach of the enemy is the first step. In modern warfare, hours and even minutes may spell victory.

The enemy is still unaware that his approach is known, for the sentinel seaplane was invisible to him. With the next step a cloud of scout seaplanes sweeps out in such numbers as to overwhelm and destroy the enemy's aeroplanes, leaving him blinded. Then follow the squadrons of great battle triplanes, each machine carrying several tons of high explosives to drop upon the hostile fleet. You can imagine the result.

In time of peace the undoubted improvement and perfection of our seaplanes as a result of several hundred machines in this system in constant practice along our coasts, will return full value on the investment. And a single plane might discover, report and send assistance to a ship in distress, that with cargo would be equal in value to the total cost of the system.

We cannot begin too soon or push too rapidly the materialization of every possible means of rendering our coasts, our coastal cities and our shipping as immune from attack and raid by sea or air as is possible.

We should have at a minimum not less than 2,000

hydroaeroplanes available on each coast, and we should have an aviator class in numbers equal to our present chauffeur class.

Aeroplanes are constantly being further perfected. Our facilities for building them are increasing rapidly. But machines are of no use without men to drive them, and it takes six months' training to render a man fit to handle an aeroplane and a year or two more to make him an expert.

Over, above and beyond the specific needs of the Navy and War Departments in their own fields, the work of training aviators in the National Guard and the Naval Militia should be pushed with the utmost vigor. The last session of Congress, largely through the energetic efforts of the Aero Club of America, appropriated several millions of dollars for aviation in the National Guard under the War Department. A measure with a similar intent for the Naval Militia was not passed at the last session, but it is earnestly to be hoped that it will be at the next.

This is a bill introduced by Senator Johnson of Maine (member of the Senate Naval Committee) in the Senate, and by Representative Kahn of California (ranking Republican member of the House Military Committee) in the House, appropriating \$1,500,000 for the establishment of the Aerial Coast Patrol system and the training of aviation sections of the Naval Militia in the various States, under the Navy Department.

The passage of this bill and the efficient carrying out of its provisions would in a year's time add some 1,500 men to the coast defense aviation personnel of the country.

This is a matter of pressing individual interest to Philadelphia, to Baltimore, to Washington, to Portland, to Seattle and other cities, for in an aeronautic sense these centers are just as much coast cities as New York, Boston, Norfolk, or San Francisco.

In the present development of the science of aviation, a tramp steamship with a squadron of aeroplanes and a few tons of high explosives, creeping in shore in thick weather, might ruin any one of these cities in a single night.

Don't you think it time that something was done?

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See That Freeboard Shine?



Champion Panama, Owned by E. D. Scofield.

THERE is only one kind of varnish that will gleam like that and keep its luster week after week and month after month down near the water line, and its name is Valspar.

Every other varnish sooner or later will turn gray and lose its luster. When that happens there is no life left in the varnish, the elasticity and durability are gone; it is brittle and speedily wears away under the terrific impact of swift waters.

Valspar can't turn white. No amount of water—not even boiling water—will give it the shabby look which water inevitably and invariably imparts to other varnishes sooner or later.

The harder the use you give to varnish, the more surely you are driven to the use of Valspar. That is why most racing boats always use it. The Panama (illustrated herewith), winner in the Class A races of the Mississippi Valley Power Boat Association, is one of the innumerable instances.

on your rowboat or canoe, Valspar reveals its supreme durability and goes through the whole season without revarnishing.



Corresponding perfection is to be found in

*Valentine's Yacht White
Valentine's Yacht Black
Valspar Bronze Bottom
Paint*

Motor boats give Valspar the supreme test and Valspar wins. But Valspar will win every other comparative test, too. On the spars of your catboat,

To the man who is a crank about his boat, we would like to send a little book of practical information—"Valspar for Boats."

VALENTINE & COMPANY,

456 Fourth Avenue, New York

Largest Manufacturers of High-Grade Varnishes in the World

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Boise

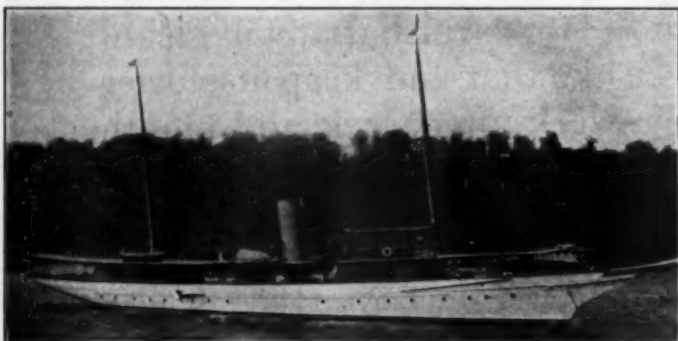
W. P. FULLER & Co., Agents for Pacific Coast:

Naval Architects
and
Yacht Brokers.

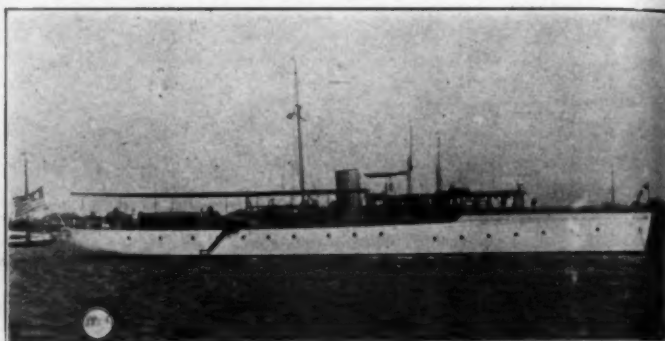
COX & STEVENS

15 William St., New York
Telephone—1375 Broad
Cable—BROKERAGE

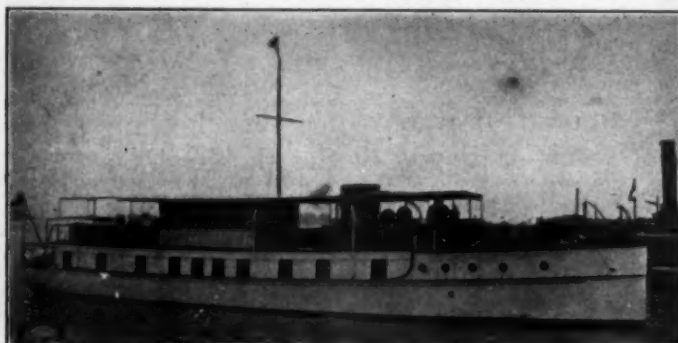
We have a complete list of all steam and power yachts, auxiliaries and houseboats available FOR SALE and CHARTER. A few are shown on this page. Plans, photographs and full particulars furnished on request. Catalogue illustrating types and sizes of yachts we have for sale will be mailed on application.



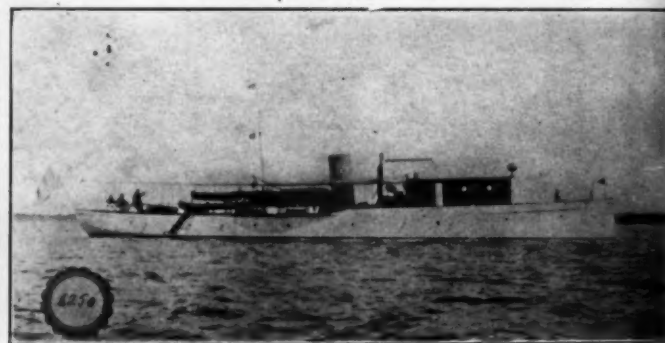
No. 229—For Sale—Fast, twin screw, steel steam yacht, 155 x 18 x 7.6 ft. Speed up to 18 miles. Dining saloon and social hall on deck. Five staterooms, two bathrooms, etc., aft. Handsomely finished and furnished. Cox & Stevens, 15 William Street, New York.



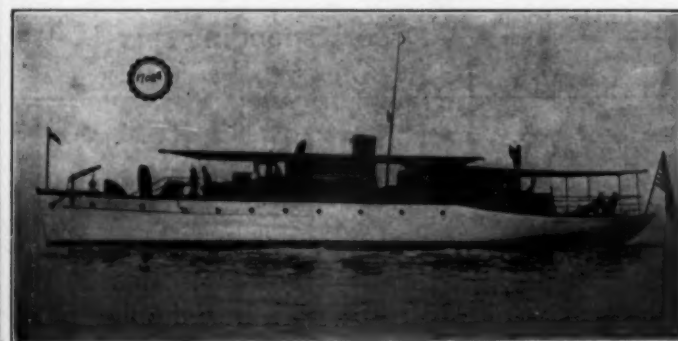
No. 885—For Sale or Charter—Handsome fast 120-ft. twin screw, steel power yacht. Speed up to 18 miles. Large dining saloon on deck, three double staterooms, main saloon, two bathrooms, etc. Price attractive. Cox & Stevens, 15 William Street, New York.



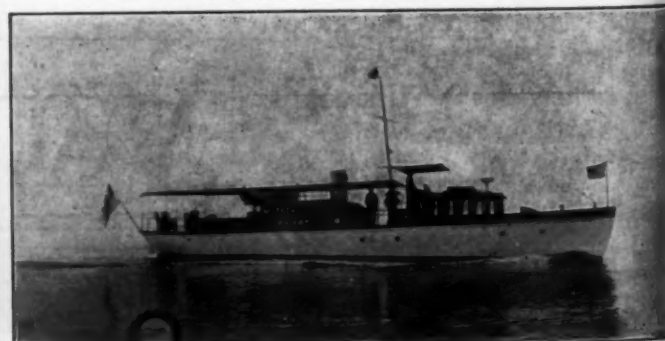
No. 2100—For Charter—Especially desirable, twin screw gasoline houseboat; 95 x 19.3 x 3.3 ft. Speed 12-13 miles. Large social hall on deck, main saloon, four double staterooms, bath, two toilets, etc. Handsomely finished and furnished. Cox & Stevens, 15 William St., New York.



No. 1250—For Sale or Charter—112 ft. twin screw cruising power yacht (now has after deckhouse). Speed, 14-16 miles. Large accommodations; dining saloon on deck forward; social hall in after deckhouse; four double staterooms, etc. All conveniences. Cox & Stevens, 15 William St., New York.



No. 1702—For Sale or Charter—Fast twin screw cruising power yacht; 90 x 16.6 x 4.6 ft. Speed up to 16 miles. Large deck dining saloon, four staterooms; all conveniences. Cox & Stevens, 15 William Street, New York.



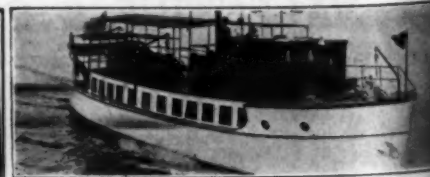
No. 1828—For Sale or Charter—Attractive power yacht; 75 x 13 x 3.6 ft. Speed 11-12 miles; Standard motor. Dining saloon, two double and one single stateroom, bath, two toilets; all conveniences. Cox & Stevens, 15 William Street, New York.



No. 1503—For Sale at Low Figure—Flush deck cruising power yacht; 85 x 15.6 x 4 ft. Speed 12-13 miles; 75/90 H.P. 6 cyl. Standard motor. Large deck saloon, two double staterooms, main saloon, bath, two toilets, etc. Cox & Stevens, 15 William Street, New York.



No. 1026—For Sale—Modern bridge deck cruiser; 53 x 10.3 x 3.4 ft. Speed, 10 miles; 24-30 H.P. 20th Century motor. Double stateroom, saloon, separate galley, etc. Price low. Cox & Stevens, 15 William Street, New York.



No. 3251—For Sale or Charter—Modern gasoline houseboat; 62 x 16.6 x 3.6 ft. Speed 8-9 miles. Large saloon with three transoms, two double staterooms, bath, electric lights, etc. Now in Florida. Cox & Stevens, 15 William Street, New York.

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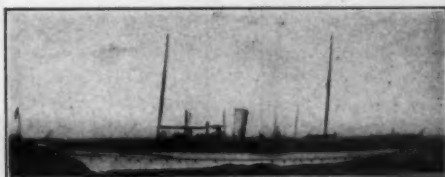
MARINE INSURANCE

Below are some of the best yachts of the size and type available for Sale and Charter. 16 years exclusive Yacht Brokerage assures clients of receiving best attention in filling requirements.

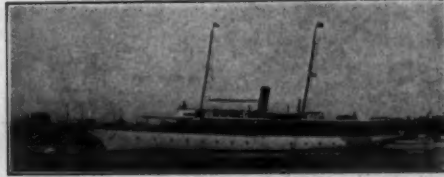
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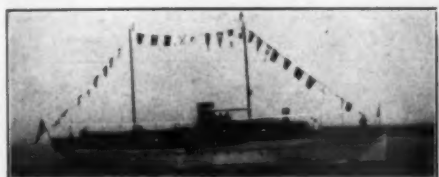
8344—The best 275-foot Steel Ocean-going Cruiser available. Low price. Stanley Seaman, 220 Broadway, New York.



7840—An excellent chance to purchase 155-foot Steel Twin Screw fast Cruiser. Speed up to 18 miles. Low price. Stanley Seaman, 220 Broadway, New York.



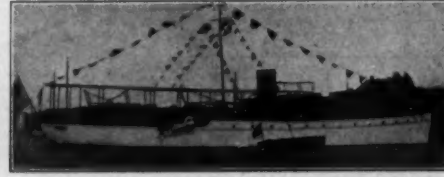
5233—Here is a very fine 113-foot Steam Yacht that cost \$60,000, and can be purchased for less than one third. Maintained at about half cost of gasoline yacht same size. Stanley Seaman, 220 Broadway, New York.



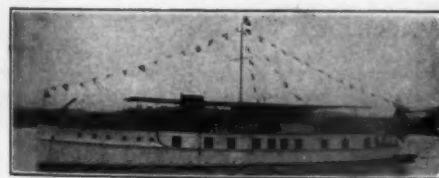
No. 8022—Exceptionally fine 98 ft. Twin Screw Coast Cruiser. Speed, 12 knots. All conveniences. Stanley M. Seaman, 220 Broadway, New York.



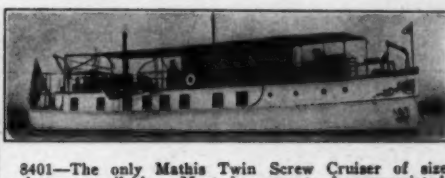
8378—The finest 112-foot Twin Screw Lawley Seagoing Cruiser available. Speed 14 knots. Low price. Stanley Seaman, 220 Broadway, New York.



8448—Lawley Twin Screw Steel Seagoing Cruiser. 110 ft. long. Fine accommodations and conveniences. Stanley Seaman, 220 Broadway, New York.



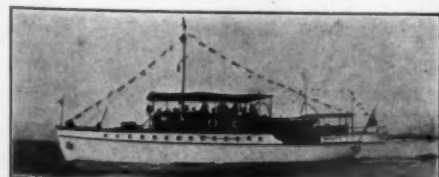
8457—For Charter—95-foot Twin Screw Sheal Draught Cruiser. Ideal for Florida use. Stanley Seaman, 220 Broadway, New York.



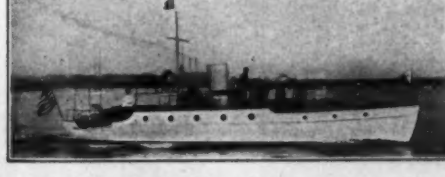
8401—The only Mathis Twin Screw Cruiser of size and type available. Must be seen to be appreciated. Stanley Seaman, 220 Broadway, New York.



8362—Here is the best 62-foot House Boat for Sale or Charter. Now in Florida. Stanley Seaman, 220 Broadway, New York.



8496—57-foot Cruiser with house boat accommodations. 3 staterooms, bath. In commission Miami, Fla. Stanley Seaman, 220 Broadway, New York.



8133—Will sell this 55-foot Cruiser at lowest price of any similar boat available. Condition perfect. Stanley Seaman, 220 Broadway, New York.



8409—Brand new 53 ft. Twin Screw Express Cruiser. Speed 30 miles. Just the type for naval maneuvers. Stanley Seaman, 220 Broadway, New York.



8339—The best 52-foot Coast Cruiser now offered. Price very low. Stanley Seaman, 220 Broadway, New York.



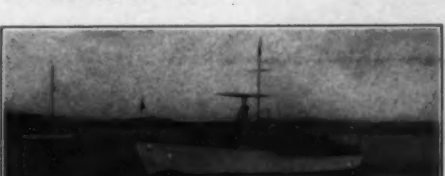
8429—50-foot Matthews Cruiser. New 1914. New 60 Sterling engine 1916. Offer solicited. Stanley Seaman, 220 Broadway, New York.



8147—This 50-foot Twin Screw Express Cruiser. Ready for immediate delivery at bargain price. Speed 15 knots. Ideal for Florida. Stanley Seaman, 220 Broadway, New York.



8045—This exceptionally fine 53-foot Coast Cruiser with 50 h.p. Standard engine, offering large stateroom and saloon. Two toilets. Can be purchased at very low price for immediate sale. Stanley Seaman, 220 Broadway, New York.



No. 8555—45 ft. Able Cruiser. In perfect condition. Stateroom and saloon. Two toilets. Murray & Tregurtha motor. Electric lights. Low price. Stanley M. Seaman, 220 Broadway, New York.



8509—40-foot "V" bottom Express Cruiser. Practically new. Very low price. Stanley Seaman, 220 Broadway, New York.

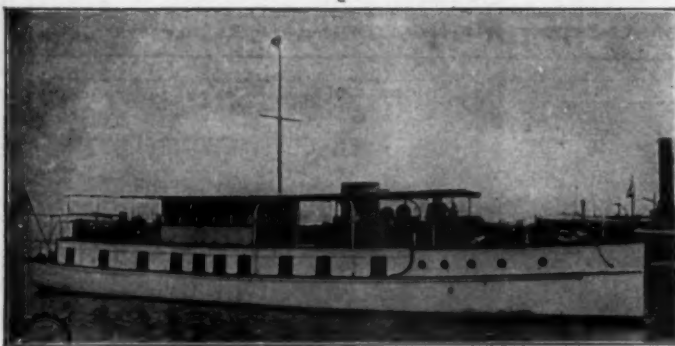
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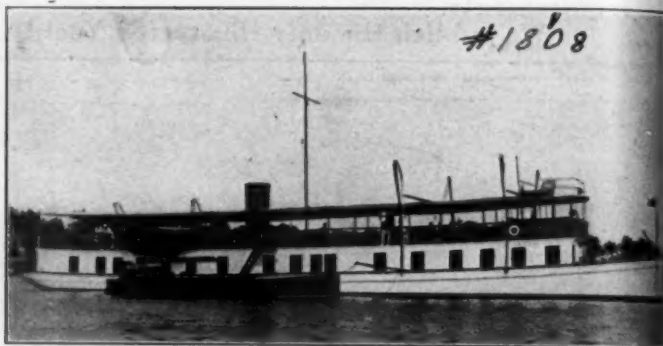
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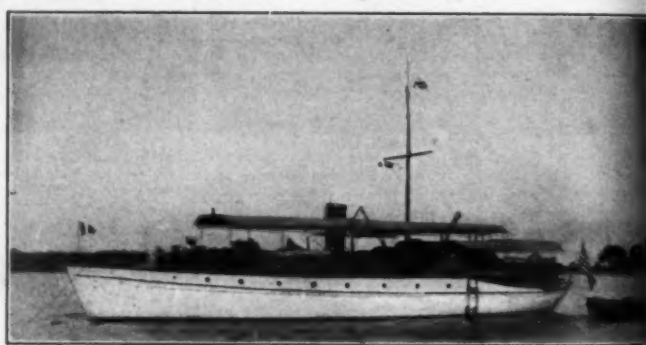
No. 1871—Sale—Charter—Modern motor houseboat. 95 ft. x 19 ft. x 3.3 draft. 4 staterooms, dining saloon, social hall, etc.



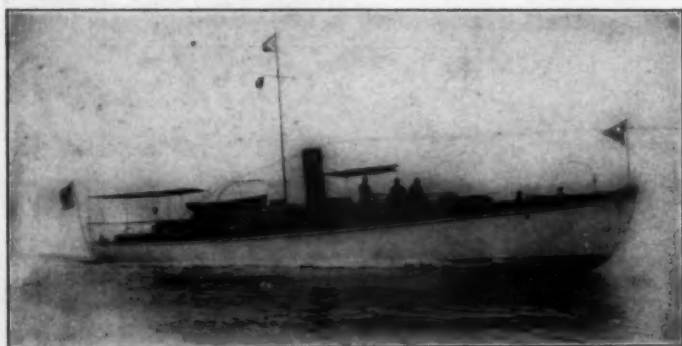
No. 1808—Sale—Charter—Twin Screw Houseboat, admirably suited for Southern waters, 125 ft. x 17 ft. 8 in. x 3 ft. 4 in. draft. 4 large staterooms, 2 bathrooms, saloon, etc.



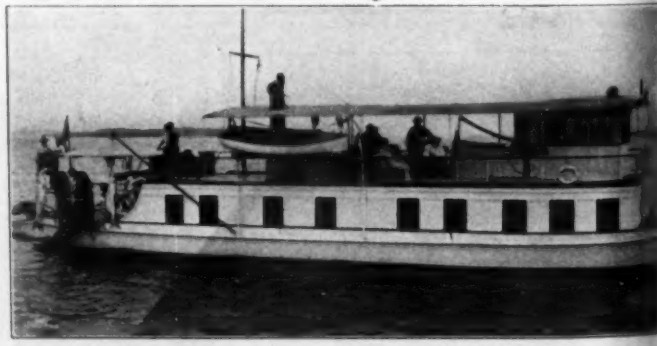
No. 7099—For Sale—Most desirable twin screw day cruiser available, 67 ft. 10 in. x 12 ft. x 3 ft. 9 in. draft. Designed by us; built 1911. Two 20th Century motors. Speed up to 14 miles. Very large cockpit.



No. 7674—Sale—Charter—Modern twin screw motor yacht 75 ft. x 17 ft. 6 in. x 3 ft. 8 in. draft—20th Century motors. Speed, 12 miles. One double and one single stateroom and very large main saloon.



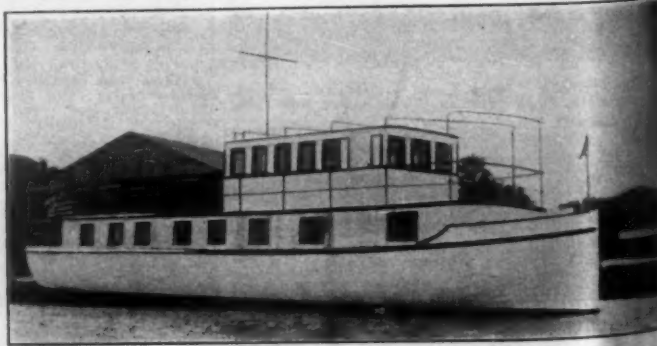
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No. 1860—Sale—Charter—Desirable Houseboat, 70 ft. x 17 ft. 6 in. x 18 in. draft. 2 35 H.P. Sterling motors new 1915. 3 double staterooms, saloon, deckhouse and bathroom.



No. 1847—Sale—Charter—Shallow draft houseboat, 85 ft. x 18 ft. 28 in. 4 staterooms, large main saloon and bathroom.



No. 1912—Charter—Modern Houseboat, 64 ft. x 17 ft. 6 in. x 3 ft. 2 in. draft. 3 staterooms, main saloon, sitting room on deck, bathroom, etc. Standard motor.

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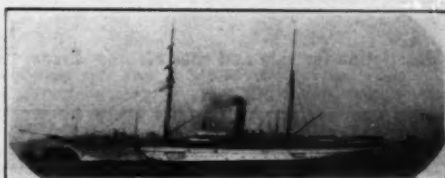
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No. 4730—Sale—53-foot waterline, auxiliary schooner. Has made long cruises. Yards have been removed.



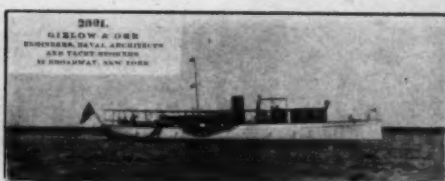
No. 2625—Sale, Charter—Ocean-going steel steam yacht. Ten staterooms. Three bathrooms. Has cruised extensively foreign waters.



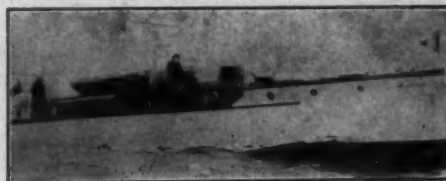
No. 858—Sale, Charter—125-foot; in Florida. Five staterooms, two bathrooms.



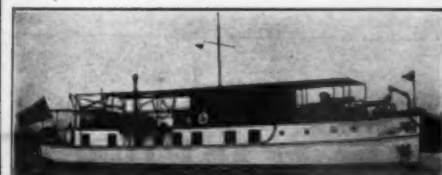
No. 5576—For Sale—Attractive 48-foot bridge deck cruiser. One-man control.



No. 2991—Sale—Fine 112-foot twin screw motor yacht. Five staterooms. Owner anxious to sell. Located near New York.



No. 5705—For Sale—60-foot, well appointed express cruiser. Speed 25 knots. Built 1916.



No. 5559—Sale—75-foot modern, twin screw, power houseboat. Four staterooms, bathroom. Standard motors.



No. 5635—Sale—50-foot cruising power houseboat. Four staterooms. Bathroom. Comfortable and roomy. Reasonable.



No. 5598—Sale—60-foot raised deck cruiser. Built 1916. Completely fitted for cruising.



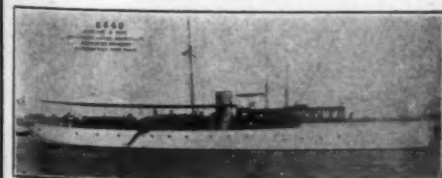
No. 697—Sale, Charter—Bargain—40-foot waterline auxiliary yawl. Heavily built.



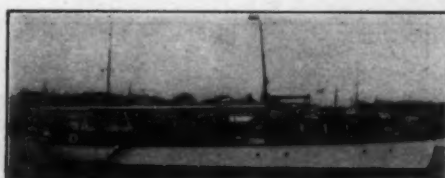
No. 4744—Sale—By an estate, 247-foot heavily built steel steam yacht.



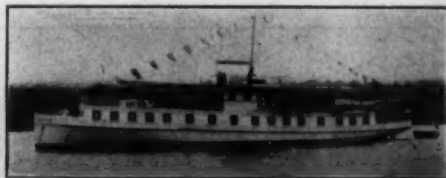
No. 3241—Sale—Luxurious 80-foot waterline, auxiliary schooner. Lawley built. Standard motor. Four staterooms.



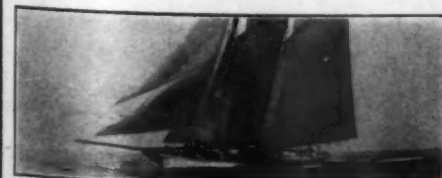
No. 3442—Sale, Charter—Attractively furnished 118-foot motor yacht. Roomy accommodations.



No. 3957—Sale, Charter—75-foot motor yacht. Good seaboot, deck dining saloon.



No. 3552—Sale—110-foot, twin screw, power houseboat. Four staterooms. Located in South. Exceptionally large main cabin.



No. 43—Owner anxious to sell, 68-foot waterline auxiliary schooner. One of the best in the fleet.



No. 5571—Sale—Popular type of fast cruiser, 55 feet overall. New 1916. Good inventory. Speed 22 miles.



No. 9—Sale, Charter—Attractive 152-foot, off shore steel steam yacht. Seven staterooms.

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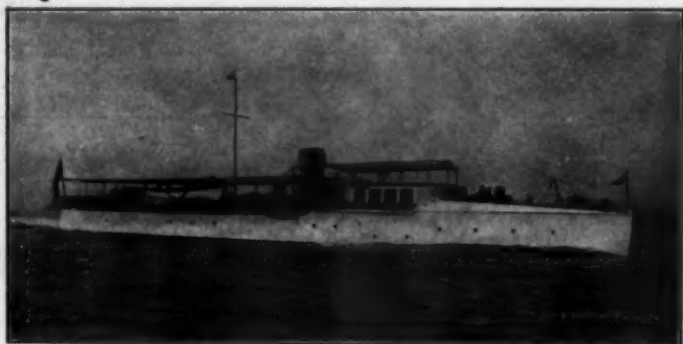
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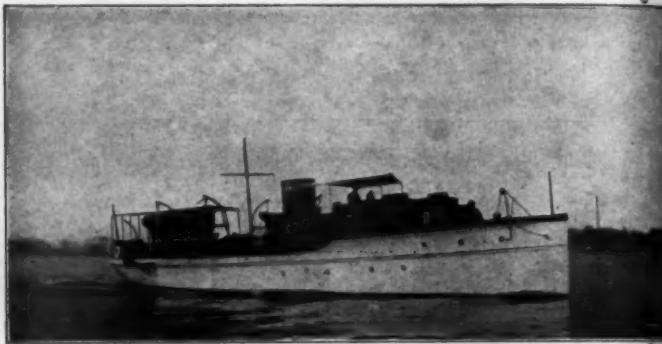
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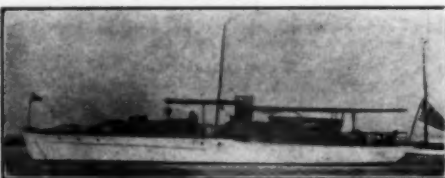
No. 618—Steam Yacht, oil burner, 135 x 16, steel construction, 4 staterooms, dining saloon, library, etc. Large cruising radius.



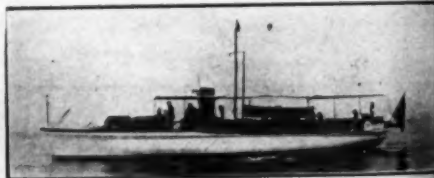
No. 2112—Modern cruiser 80 x 13.6; two six cylinder Sterlings; good interior arrangement; used only two seasons.



No. 923—Gasoline Yacht, 85 x 14, six-cylinder Twentieth Century motor, three staterooms, bath, etc.



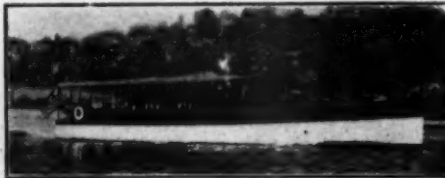
No. 1800—Handsome twin screw cruiser, 68 x 13.6. Standard motors, engine controls on deck. Splendid accommodation.



No. 1367—Modern Power Cruiser, 60 x 11.6, equipped with 4-cylinder Speedway motor. Price attractive.



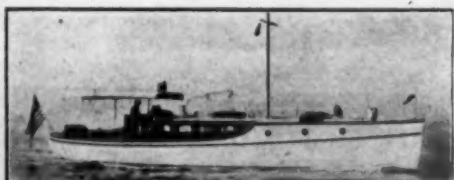
No. 1960—Desirable cruiser, 65 x 12; best condition; complete outfit; 60-80 H.P. motor; price reasonable.



No. 2202—Express Cruiser, 55 x 8.9, built 1916, eight-cylinder Speedway motor, speed 23 miles.



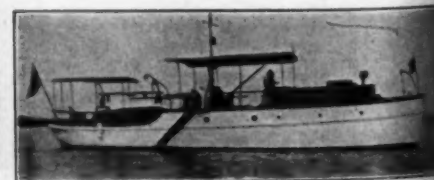
No. 64-H—Florida Houseboat, 62 x 17, light draft, tunnel stern, 50 H.P. motor, large accommodations.



No. 1898—Raised Deck Cruiser, 43 x 10, built 1912, heavy duty Sterling motor, first class condition.



No. 2068—High Speed 56 ft. Cruiser, 8-cylinder 150/180 H.P. Sterling engine, speed 20 miles.



No. 1956—Desirable cruiser, 52 x 11.6. Twentieth Century motor, everything in good condition. Price reasonable.



No. 1499—Motor Boat, 40 x 8, Sterling motor, steering wheels and engine controls in cockpit and on bridge.



No. 2269—Fast, seaworthy motor boat, 45 x 11, built 1914, six-cylinder motor, speed 16 miles, price attractive.



No. 2167—Modern 50 ft. Cruiser, six-cylinder Sterling motor. Cabin, two double staterooms, etc.

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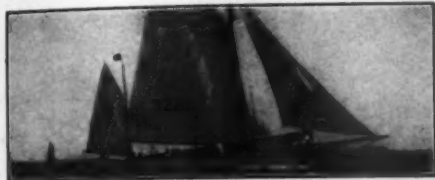
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Our list comprises all the available yachts for sale and charter. Below are a few of our offerings. If none of these appeal to you, write us your requirements. Our knowledge of the yachts we offer, and our 22 years' experience in the business, insure satisfaction to any one buying or chartering a yacht through this office.



3282—70-foot auxiliary keel yawl. Two staterooms, saloon, etc. Speed 8 miles.



3805—120-foot steam yacht. Three staterooms, main saloon, dining saloon, bath, etc. Speed 12 to 14 miles.



1833—45-foot speed cruiser. Double stateroom and saloon sleep 4 people. Speed up to 23 miles.



1840—70-foot twin screw power yacht. Two staterooms, main saloon, dining saloon, etc.



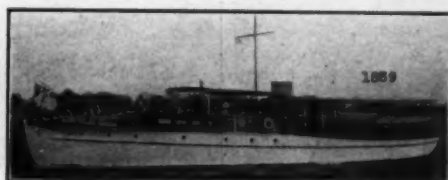
1837—40-foot express cruiser, built 1916. Speed 25 miles.



1545—45-foot cruiser. Large saloon with three berths. Speed 10 miles.



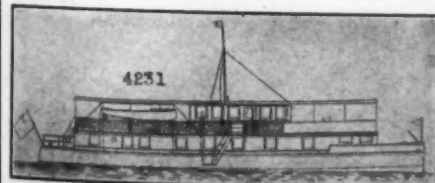
1230—50-foot cruiser. Large saloon with four berths. New engine 1916. Speed 12 miles.



1839—80-foot twin screw power yacht. Three staterooms, saloon, bath, etc. Speed 15 miles.



1804—For charter—75-foot twin screw power yacht. Three staterooms, saloon, bath, etc. Speed 12 miles. Now in Florida.



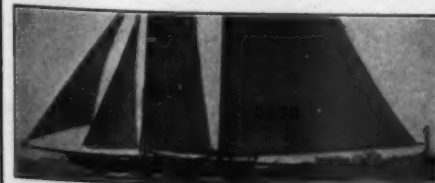
4231—For charter—85-foot power houseboat. Four large staterooms, large saloon and dining saloon, bath, etc. Now in Florida.



1175—85-foot power yacht. Two double staterooms, large dining saloon, social hall, bath, etc. Speed 12 miles.



1817—60-foot twin screw express cruiser. Double stateroom. Saloon, etc. Speed 26 miles.



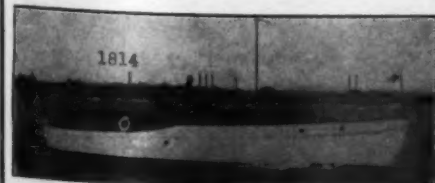
3570—125-foot auxiliary keel schooner. Five staterooms, large saloon, two baths. 75 H.P. Standard Motor.



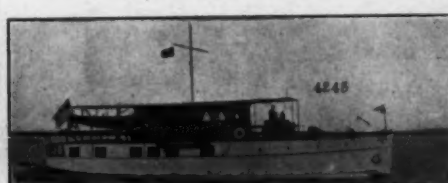
1149—45-foot cruiser. Double stateroom, two berths in saloon. Speed 10 miles.



1822—43-foot cruiser. Double stateroom and saloon sleep five. Speed 12 miles.



1814—Sale or charter—48-foot cruiser. Double stateroom and three berths in saloon. Speed 12 miles.



4245—70-foot power houseboat. Four staterooms. Large social hall, main saloon, two toilets, etc.



1828—70-foot cruiser. Double stateroom and large saloon, two toilets, etc. Speed 14 miles.

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FRANK BOWNE JONES, Yacht Agent

Cable Address "Windward," N. Y.

29 Broadway, New York

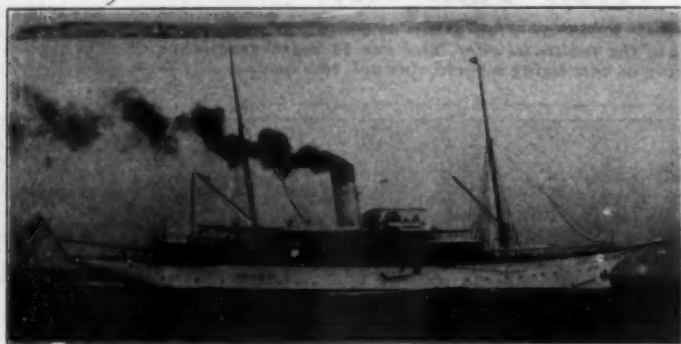
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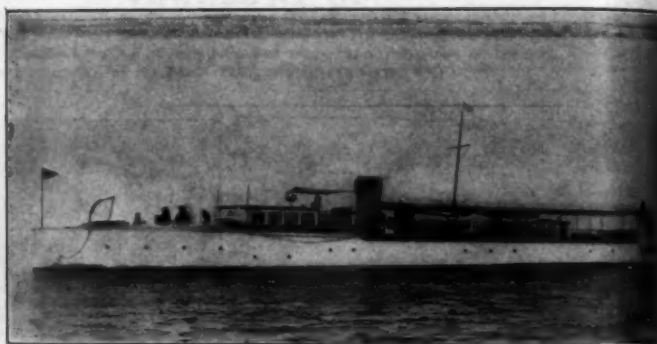
NAVAL ARCHITECTURE

Description, Prices on Request

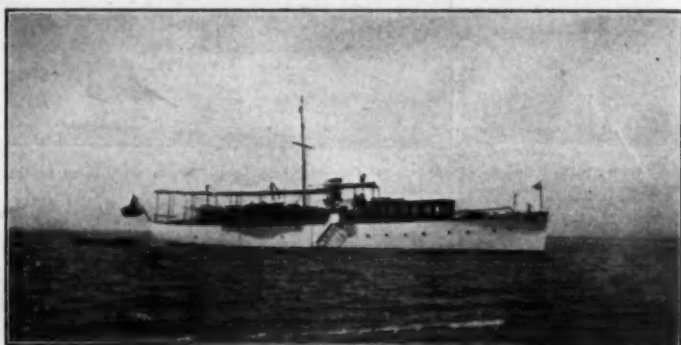
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No. 3904—200 ft. Steam Yacht; in excellent condition; reasonable price.



No. 4806—135 ft. Steel Oil Burning Steam Yacht; good speed.



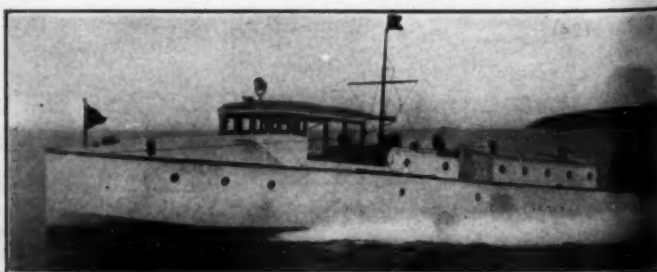
No. 200—Charter—One of the finest power cruisers; 98 ft.; twin screw; now in Florida waters.



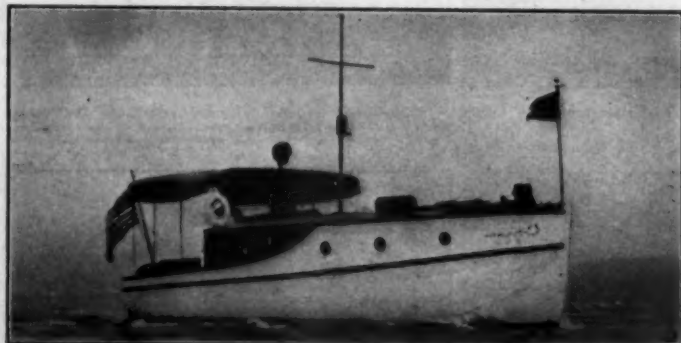
No. 5929—85 ft. Gasoline Yacht; Standard engine; good condition; reasonable price.



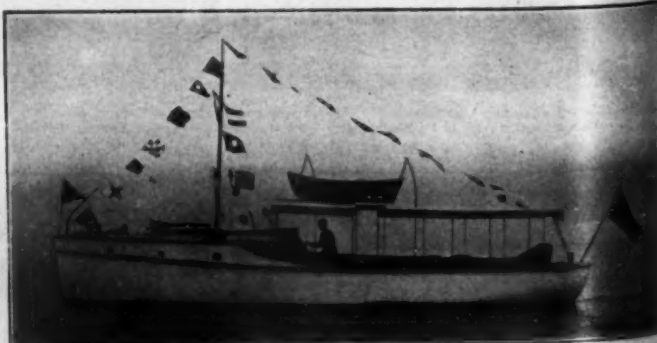
No. 7161—50 ft. Gasoline Cruiser; new Sterling engine; excellent condition.



No. 1071—60 ft. Express Cruiser; new boat offered at a bargain price.



No. 371—31 ft. Gasoline Cruiser; 1916 build; exceptionally large accommodations.



No. 6386—42 ft. Gasoline Day Cruiser; new Sterling engine; Elco build; good speed.

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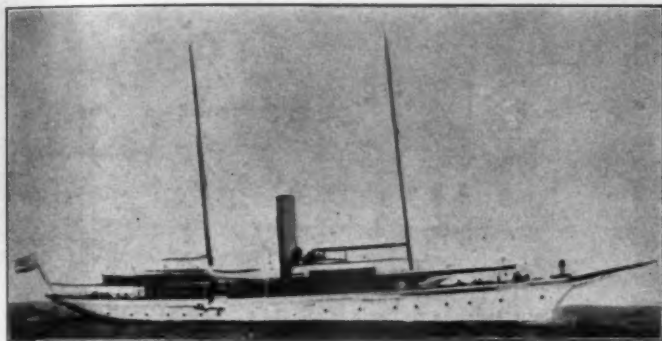
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We can offer a number of attractive motor boats, express and cruiser types, 1916 construction, not regularly on the market, as well as all the best steam and other type of yachts available.

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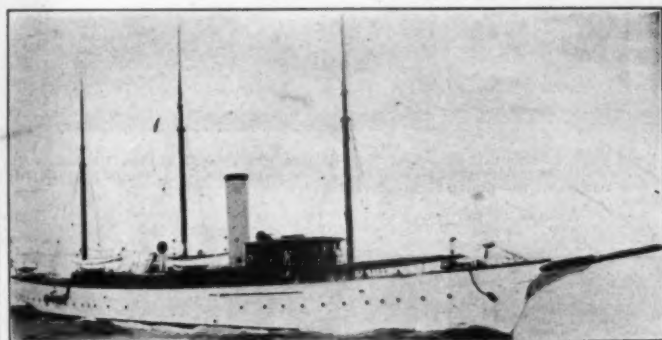
NEW YORK



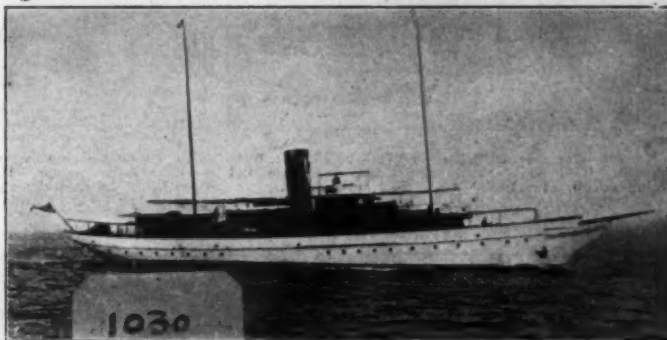
No. 1101—Sale or Charter—165 ft. cruising steam yacht. 3 double and 3 single staterooms. 3 baths. Dining and main saloon, also social hall. Fine seaboard. Economical to operate. A-1 condition.



No. 4002—For Sale—Handsome flush deck keel schooner yacht. 95 x 65 x 19.3 x 9.6 draft. Lawley construction. Two double staterooms. Bathroom. Large saloon. New Ratsay sails 1916. 6 cylinder 60 H.P. Lamb motor 1915. New Matthews electric light plant 1916. Yacht is in fine condition and must be seen to be appreciated. Might charter for entire Summer season.



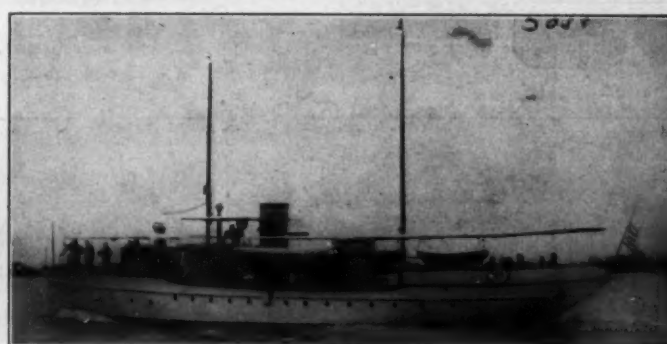
No. 1008—For Sale at attractive price to close an estate—245-foot steel, steam yacht. Well adapted for offshore or coastwise cruising. Fine accommodations. Good condition.



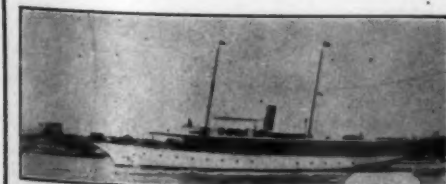
No. 1030—For Sale—205-foot twin screw, steel, steam yacht. Triple expansion engines. Two Babcock & Wilcox boilers arranged for burning oil fuel. Cruising radius about 6500 miles at 10 knots per hour. Built 1913. Speed up to 15 knots. Every modern improvement.



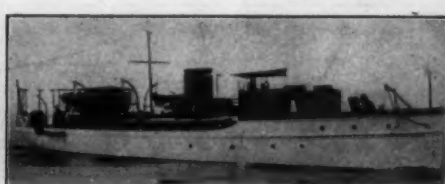
No. 5055—For Sale—110 ft. steel motor yacht. Speed up to 17 miles. 6 double staterooms. 2 bathrooms. Dining saloon and social hall in deck house. First class condition.



No. 5051—For Sale—Best 98-foot twin screw motor yacht available. 17 ft. 2 in. beam. 5 ft. 6 in. draft. Speed up to 16 miles. Built 1913. Unusual accommodations. High class throughout. A-1 condition.



No. 1018—For Sale—To close an estate: Cruising steam yacht 115 x 18.6 x 6 feet draft. Speed, 12 miles. 6 staterooms. 2 bathrooms. Saloon in deckhouse 26 feet long. Most economical boat of size in the fleet. A-1 condition.



No. 5049—For Sale—Best modern 80-foot twin screw motor yacht available. Practically new. Large bridge and after deck. Fine quarters for owner and guests. Dining saloon in deck house. Sterling motors. Speed up to 15 miles. Completely found.



No. 5298—For Sale—Twin screw cruising motor yacht 75 x 15 x 4 feet draft. Two double staterooms. Main saloon in deckhouse. Two 6 cylinder 50-60 H.P. Standard motors. Electric lights. 12 miles. Now in commission in Florida. Immediate delivery. Might consider charter.

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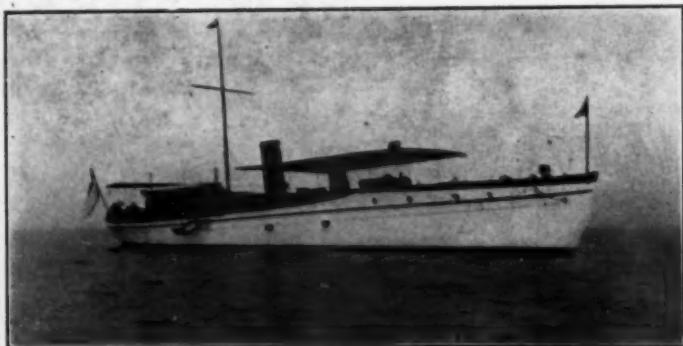
SOUTHERN YACHT AGENCY

American Building

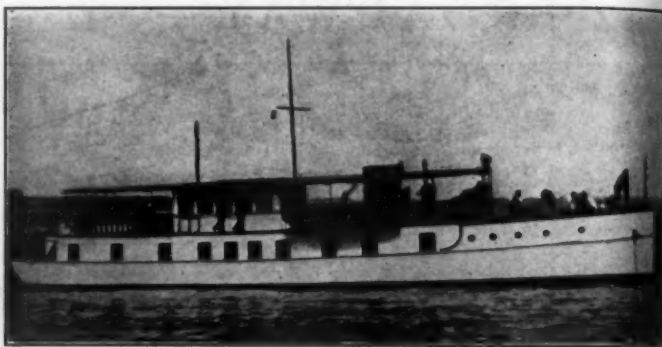
Baltimore, Md.

We have on our list all the desirable yachts available for sale or charter

Some representative boats are shown on this page



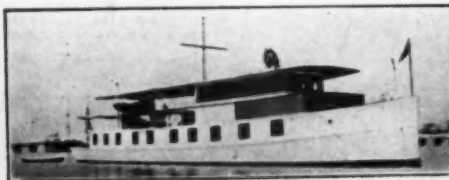
No. 596—Sale—100 ft. Cruiser. Large accommodations. New Standard motor. Fast, Able. Perfect condition.



No. 683—Charter—Twin screw house yacht. 95 x 19.3 x 3.3. Dining saloon, four double staterooms and bath below deck. Heated. Wireless. April Charter. Florida delivery.



No. 736—For Sale or Charter—62 ft. over all, 3 ft. 6 in. draught. Two double staterooms, bath, deckhouse and dining saloon. Practically new. Florida delivery.



No. 730—Sale or Charter—Light draft houseboat. 85 x 18. Standard motor. Hot and cold water. Also salt water bath. Large deckhouse. Five staterooms and dining saloon below deck. Florida delivery.



No. 681—Sale or Charter—68 x 13 x 4. Twin screw. Saloon, two double staterooms, bath, etc. Attractive price. Immediate delivery.



No. 655. Twin screw, 90 ft. Excellent accommodations. Very able. Attractive selling price. Southern or Northern delivery.



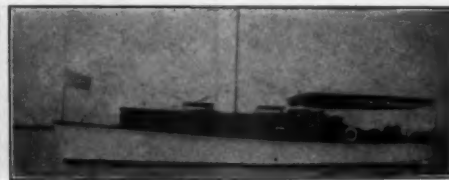
No. 738—Sale—Houseboat, 51 x 15.5 x 3. Standard motor. Saloon, one single and two double staterooms.



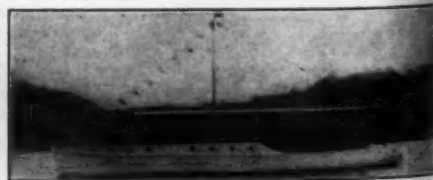
No. 609—Sale—72 x 12 x 3.6. Twin Screw—Speedy motors. Dining saloon and galley in deckhouse. 3 double staterooms and saloon below. Price attractive.



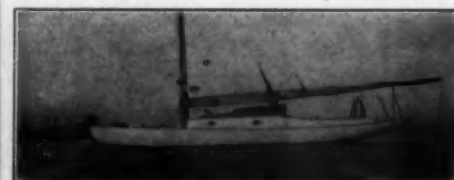
No. 514—Sale or Charter—75 ft. twin screw Standards. Very desirable. Florida delivery.



No. 709—Sale—46 feet. 32-37 H.P. Standard 4-cylinder. Speed 11 miles. Very handsome. Absolutely good as new. Would consider trading as part payment for larger boat.



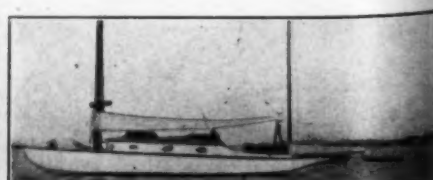
No. 574—Sale—58 x 12.6 x 3.4. Twentieth Century motor. Fast and able. Perfect condition.



No. 556—Auxiliary sloop. 37 x 27 x 8.6 x 4.6. Excellent condition. Well built. Sell cheap.



No. 721—Cruiser, 33 x 9.3 x 3. Built 1914. 4-cylinder, 4-cycle Palmer. Speed 9 1/4 miles. Double cabins make unusual accommodations. Perfect condition. Remarkably able. Sell very cheap.



No. 711—Auxiliary Yawl. 38 x 25 x 8.7 x 5.6. Excellent condition. Well built. Sell cheap.

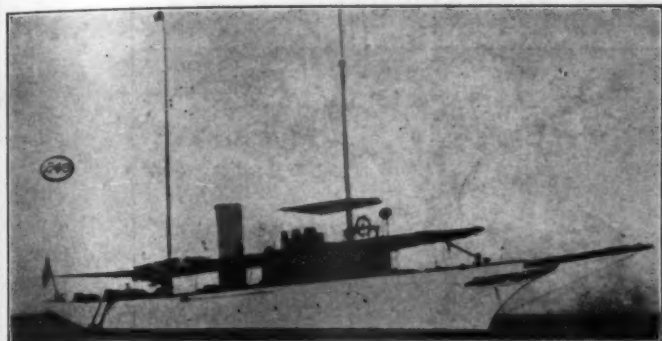
EDWARD P. FARLEY CO.

NAVAL ARCHITECTS YACHT BROKERS

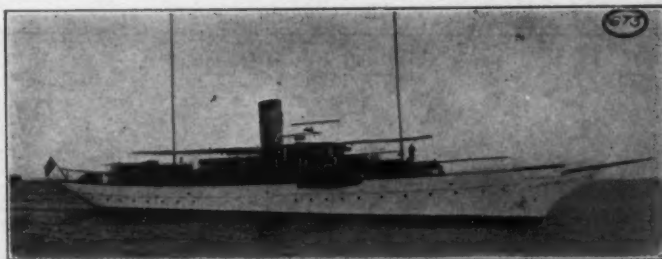
Tel. Harrison 1344

80 E. JACKSON BOULEVARD, CHICAGO, ILL.

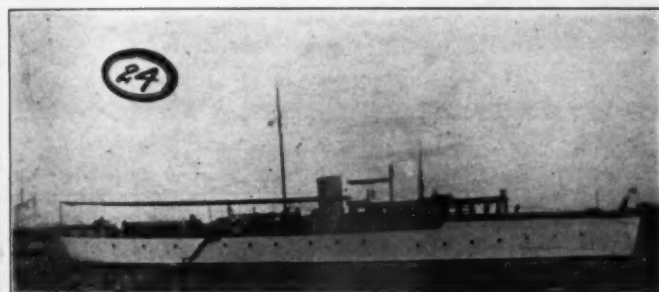
WE OFFER FOR SALE AND CHARTER the most desirable boats of all types on the Great Lakes and Coasts. Plans, photographs and full particulars furnished upon request.



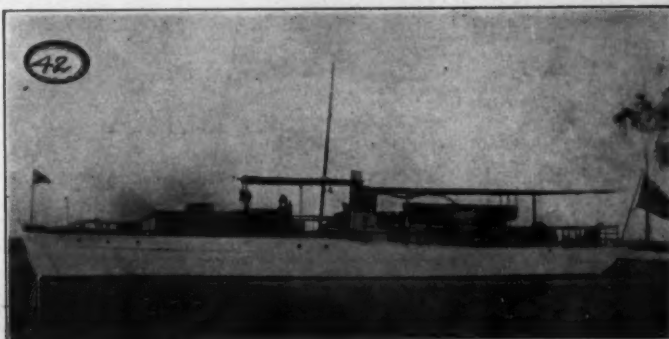
No. 249—For Sale—Modern 128 ft. steam yacht. Splendid accommodations. Very economical to operate. Low price.



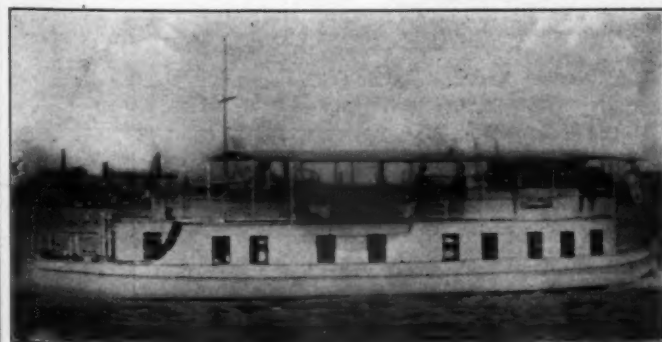
No. 673—For Sale—205 ft. twin screw steel steam yacht. Built 1913. Especially designed for off shore cruising. Fuel oil.



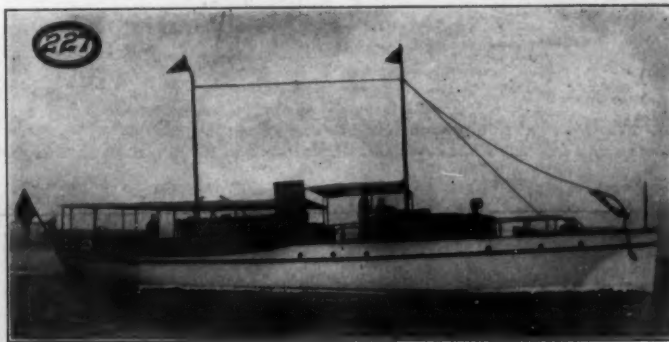
No. 24—For Sale—118 ft. steel motor yacht. Most desirable boat of her type available. Three double staterooms. Large main saloon. Dining room on deck. Speed up to 18 miles.



No. 42—For Charter—Comfortable and well equipped 67 ft. power yacht. Excellent accommodations. Available Florida.



No. 14—For Charter—70 ft. shallow draft houseboat. Three double staterooms. Saloon and bath. Now in Florida.



No. 227—For Sale—Finest gasoline power yacht of moderate size available. 80 x 16 x 5 ft. 6 in. Built by Lawley 1915. Two double staterooms. Bath. Two toilets. All modern conveniences. Speed 14 miles. Winton motor. Handsomely fitted and furnished.



No. 768—For Sale—45 ft. Elco cruiser. Standard motor. Double stateroom; saloon; two toilets. Large cruising radius. Low price for immediate sale.



No. 71—For Sale—Bargain—99 ft. auxiliary schooner. Splendid accommodations for cruising and fast under sail or power. Full equipment.

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Cable address "Yachtsan," N. Y.

Telephone 969 Vanderbilt

YACHT APPRAISER

Harry W. Sanford

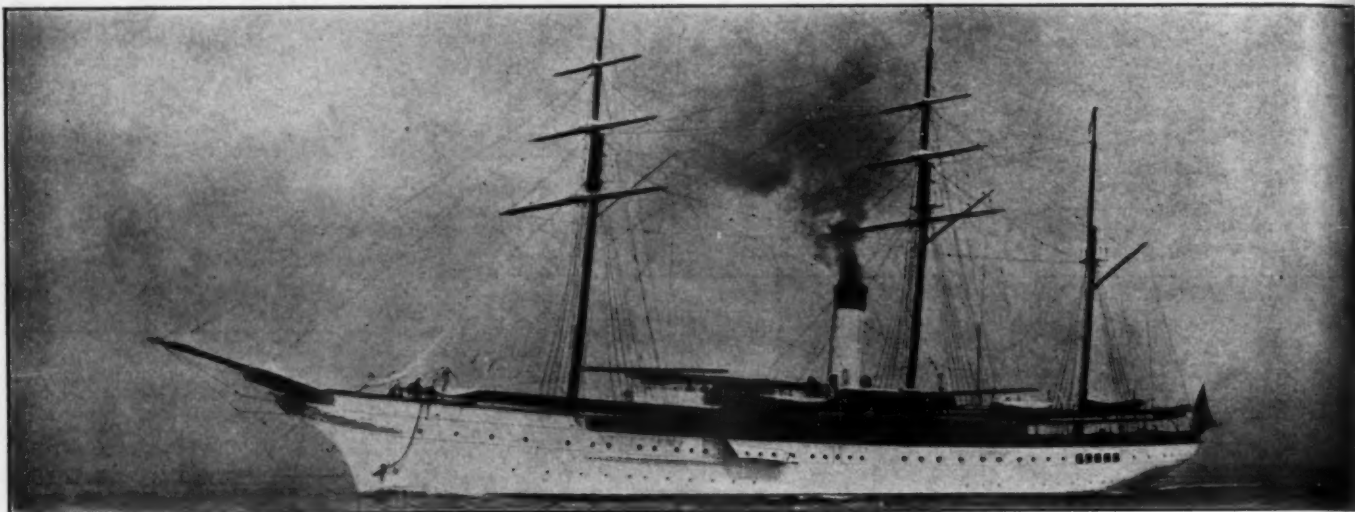
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MARINE INSURANCE

500 Fifth Avenue at 42d Street, New York

High-class Sail and Power Yachts of all types For Sale or Charter

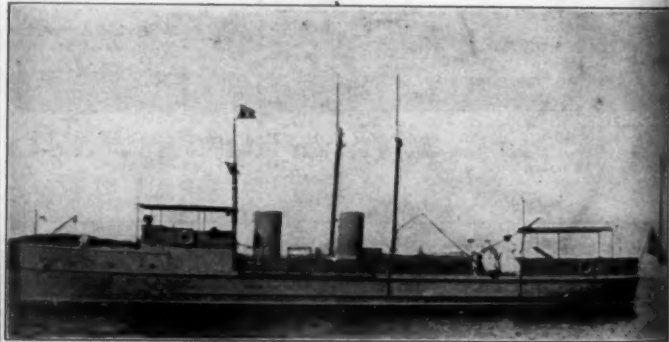
A few of the yachts available are herewith submitted for your consideration. For further information apply to Harry W. Sanford.



No. 620—For Sale—282' steel steam yacht. Circumnavigated the Globe. Excellent accommodations.



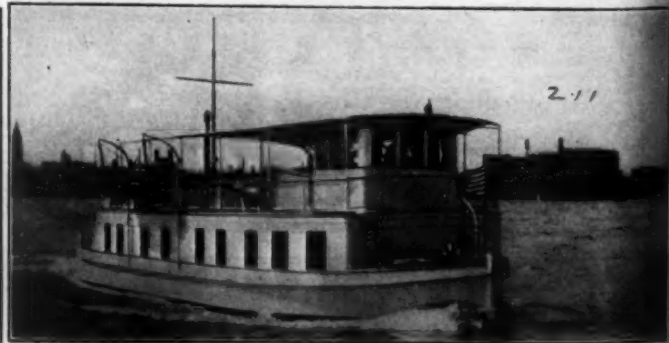
No. 609—Sale or Charter—68' Power Yacht, accommodations for 6 persons—now South.



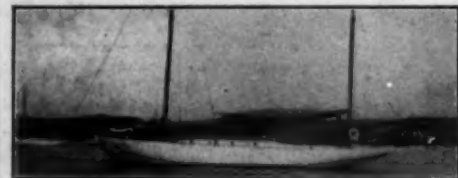
No. 557—Charter after February—68' Torpedo type yacht—accommodations for 5 persons—now South.



No. 619—110' twin screw house-boat—accommodations for 10 to 12 persons. Now South.



No. 211—Sale or Charter—70' twin screw house-boat. Comfortable accommodations for 6 persons. Now South.



No. 74—For Sale—50' auxiliary yawl. Excellent condition and very seaworthy.



No. 617—For Sale—40' express Day Cruiser. Built 1916. Speed 25 miles.



No. 587—For Sale—Modern 67' auxiliary schooner. Accommodations for 6 to 8 persons. Exceptionally seaworthy. Now South.

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RELIANCE MOTOR BOAT CO.

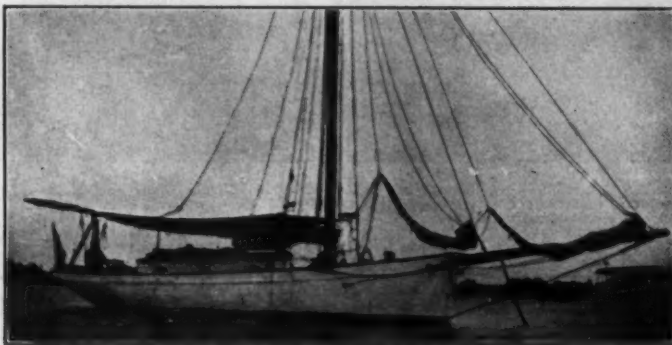
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NEW YORK CITY

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Hydroplanes, Runabouts, Yacht Tenders, Cruisers.
We offer the following, built by us, or stored at our works.
Also a number of overhauled four-cycle motors.



No. 206—30 ft. x 6 ft. Cinderella model; 6 cylinder 135 horse Sterling, 35 miles. Electric starting and lighting system.



No. 190—38 ft. x 13 ft., auxiliary. Heavily built, heavy duty motor. Galley, cabin, toilet; fine family boat.



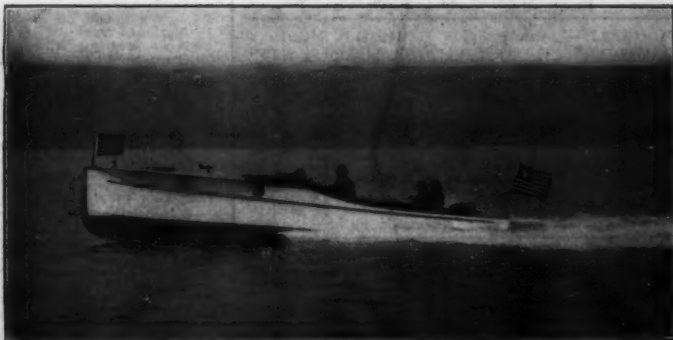
No. 203—34 ft. x 7 ft. x 2 ft. 6 in., four cycle motor. Cabin, galley, toilet; electric light. 12 miles.



No. 170—25 ft. x 5 ft., 25 horse Ferro, 18 miles; fine running order.



No. 195—21 ft. x 4 ft. 8 in., Cinderella type, 25 horse Sterling, 18 miles. Electric starting and lighting system.



No. 211—30 ft. x 7 ft., Cinderella, cabin conveniences. Van Blerck, 4 cyl., 65 horse, 23 miles. Full electric system.



No. 201—26 ft. x 5 ft. 2 in., Cinderella model. 4 cyl., 90 horse Sterling, 36 miles. Electric starting and lighting system.



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THE MOTOR BOATING MARKET PLACE

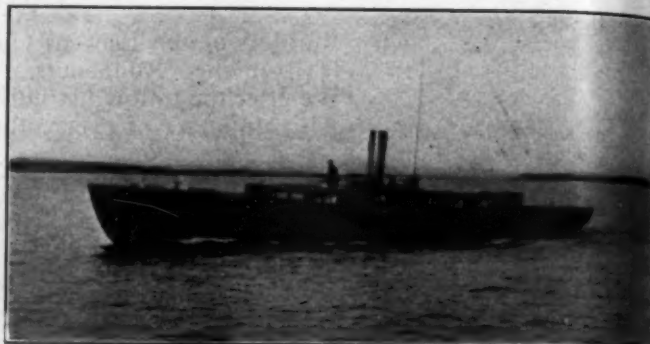
The rate for "For Sale" and "Want" advertisements is 3 cents per word, minimum 75 cents. If an illustration is used, the charge is as follows, which includes the making of the cut:
 Cut one inch deep, one column wide..... \$2
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for the
Motor Boatman

Before you buy or before you sell examine the exceptional buying and selling opportunities under this heading. They comprise the best offers of the month. Please mention MoToR Boating.



FOR SALE at sacrifice—Raised deck, power yacht, 24 H.P. automatic engine, built of cedar and oak with quartered oak cabin and decks. Equipped with electric lights, toilet and all modern conveniences. Will accommodate six comfortably in pilot house, cabin and engine room. Pipe berths in forecabin for crew. Boat located on James River, Va. Handy for Southern waters. Room 2623, 17 Battery Place, New York City.



72-FOOT CRUISER—Two staterooms, saloon, cockpit aft, bridge deck; sleeps for Motor 100 horsepower, fifteen miles. Price \$6500. Morgan Barney, 29 Broadway, New York.



SALE or CHARTER—50 x 14 x 1 1/4 feet. Deck saloon, main cabin, four staterooms, toilet, and galley. Electric lights. Will install engine if desired. Box 515, Woodstock, Vermont.

CANADIANS, Second-hand engine bargains. Send for list. GUARANTEE MOTOR COMPANY
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USE "SNAPPER" ENGINES for your small boat. They are a big little engine built by The Automatic Machine Co., Bridgeport, Conn.

1 1/2 H.P. Eclipse motor, good condition, \$20.00. Lot of marine hardware left from boat livery. Write for list. Elmer Calkins, Petoakey, Mich.

Heavy duty four cyl. four cycle governor controlled "MODEL" engine, 60 H.P. at 400 R.P.M., 7 1/4" bore and 10" stroke, complete and in perfect condition. Will sell reasonable. Badger Motor Company, Milwaukee, Wis.

FOR SALE—5-cylinder 8 1/4 x 11, 110 H.P. Murray & Tregurtha, excellent condition. Used very little, crated F. O. B. Boston, \$1500. Fitted for kerosene, \$1650. Six-cylinder, 5 1/4 x 6 1/2 Blount and Lovell, Bosch Magneto, double ignition, and generator. This engine used 2 months and crated F. O. B. Boston, \$1000. Four-cylinder 10 H.P. Buffalo, excellent condition, \$150. L. T. Carey, 111 Haverhill St., Boston, Mass.

For Sale at a sacrifice, a 39 ft. glass cabin launch, built by Sheldon, beam 9' 6". Built 1898. Two cylinder Globe engine, 7 x 9". Cabin finished in mahogany. Complete equipment. Price, \$400 for immediate sale. For particulars address F. S. Nock, East Greenwich, R. I.

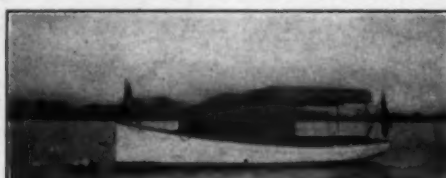
BARGAIN—Raised Deck Cruiser 38 feet—20 horse. Twentieth Century, 4 cylinder. Complete cruising inventory. Cost \$4,000. Sell \$1500 cash. L., 558 Hudson Terminal, N. Y.

FOR SALE—40 ft. glass cabin cruiser, "Bettina." Standard engine—cruising speed about 9 1/2 miles. Mahogany finish, plush cushions, hair mattresses for bunks, sleep six. Toilet, lavatory, galley, refrigerator, stove, etc. Full equipment of anchors, ropes, lights, etc. Boat can be seen at Stuyvesant Yacht Club, City Island, N. Y. Further particulars, F. G. Maisch, 71 Broadway, New York City. Rector 5668.

We moved into our new quarters January First and are making exceptionally low prices on new and second hand engines. If you are interested, write for prices, stating size required. Campbell Motor Mfg. Co., Minneapolis, Minn.

FOR SALE—Four cylinder, 4 cycle, 70 horse semi-heavy duty new type "Automatic" Motor; double Atwater-Kent ignition system. Includes 12 ft. bronze shaft, Hyde propeller, stern bearing, stuffing box, pilot house, control, etc. New last June; in fine condition; no reasonable offer refused. James A. Boyd, Anglesen, New Jersey.

Trimount Whistle Blower Outfits	Trimount Rotary Hand Bilge Pumps
Blower runs by friction contact with engine fly-wheel. Whistle of brass, nickel-plated. 3 sizes, \$10, \$15, \$20.	All bronze composition. Suction lift 6 to 20 feet. A lifelong convenience. 3 sizes, \$20, \$25, \$35.
TRIMOUNT ROTARY POWER CO. 29 Heath Street (Factory: Whiting Ave., East Dedham, Mass.)	



FOR SALE—23 ft. x 6 ft. 6 in. cruiser. Stock built, all copper riveted, fully equipped, in perfect condition, has pantry, 2-burner stove, sleeping accommodation for 4. New Lathrop engine; speed 9 miles. Am going West, must sacrifice for \$290. Address: Arthur J. Nierendorf, 700 Broadway Terrace, Hartford, Conn.

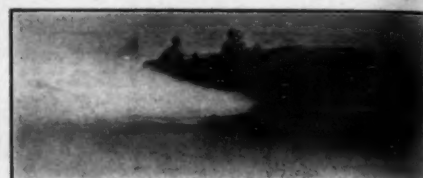
A FEW RARE BARGAINS.
 1—4-cyl. 4-cy. 10 H.P. Sterling complete Brand New.....\$200
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 1—Jump Spark Wizard Magneto.....5
 1—4-cyl. Bosch Magneto, Cost \$125, will sell for. 15
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 2—Make and Break Magneto.....1.50
 2—2-cyl. Timers.....1
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 1—2 feed Detroit Oil.....5
 1—4 feed Detroit Oil, New.....12
 1—4 feed Detroit Oil, used, each.....7
 1—6 feed Precision Oil.....6
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 1—Robbert Marrel & Compass, New.....8
 1—Conn. Spark Plug with Vibrator.....2
 2—2-cyl. Perfix Ignition Outfits, New, each.....7
 10—Perfix Ignition Outfits, New, each.....1.50
 1—3-blade 18 in. Wilmarth Morman Reverse Wheel, good as new.....18
 3—3-blade 24 x 33 Michigan Iron Wheels, New, each.....4
 1—3-blade 28 in. Standard Wheel Brass.....10
 JESIEK BROS., Holland, Mich.

FOR SALE—Ferro Outboard Motor, Bosch Magneto, Kingston carburetor. Practically brand-new; guaranteed perfect. Worth \$85.00, a bargain at \$55.00. American Outboard motor, Elkhart magneto, brand new, never unpacked, very fast and smooth running little motor. A bargain at \$47.50.

Model U 3 H.P. Gray with built-in reverse gear, 6 feet bronze shaft, bronze propeller, and complete outfit. Worth \$125.00. All brand new, never unpacked. An exceptional bargain at \$80.00. V. D. Liggett, Box 173, Tyler, Texas.

USED ENGINES AT BARGAIN PRICES
 Relaco—4-cyl., 4 x 6, 20 h.p. at 600 r.p.m. Magneto and reverse gear in fine condition.
 Buffalo—4-cyl., 4 1/2 x 5, 15 h.p. Complete with reverse gear. Guaranteed to be in good running order.
 Murray & Tregurtha—4-cyl., 6 x 6, 40 h.p. Bosch magneto and reverse gear. In fine condition.
 Send for our list of re-built engines. Walter H. Moreton, 214 State St., Boston, Mass.

SACRIFICE
 PENNSYLVANIA GLOBE ENGINE—4 cylinder, four cycle, 50 h.p., absolutely perfect condition. Bosch dual ignition, magnetic plug, bronze propeller, stuffing-box, stern bearing, shaft, carburetor, exhaust muffler, everything complete and ready to install; had very little service. Owner installing more power is only reason for selling. Price, complete, \$1,475.00. The outfit and ignition system cost \$2,430.00. Address: C. V. Celler, 417 Natchez St., New Orleans, La.



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 Dixie Junior Model—Hydroplane. Speed 40 miles. Six-cylinder Sterling engine. Mahogany finish. In good condition. Just the boat for the man who wants REAL SPEED at SMALL EXPENSE. Niagara Motor Boat Co., 285 Sweeney Street, North Tonawanda, N. Y.

Silver Lake Estates, the most beautiful spot in all Florida, offers carefully restricted lake frontage residences, citrus groves, golf links, bathing, fishing and hunting. To trunk line railroads. Dixie Highway and fine local roads. A high class, exclusive Florida home at moderate cost, combined with exceptionally profitable investment. No 1042, Leesburg, Florida.

FOR SALE—35' high-class mahogany runabout, speed 30-35 miles; 26' hydroplane, speed 40-45 miles; one 36 H.P. high speed Sterling motor; one 1 to 1 1/4 gear box. All like new and absolutely guaranteed. Selling in order to close an estate and no reasonable offer will be refused. J. Peterson, Nyack, N. Y.

FOR SALE—Trunk cabin cruiser, 30 x 9, 16 Horse Power, four cylinder Regal engine, fully equipped and in commission; will sleep four comfortably. Just the boat for southern waters. For further information address A. J. Chisolm, 20 Church Street, Charleston, S. C.

Yacht brokerage office in East desires bright young men for assistant in office and outside work. State age, qualifications, experience, present vocation and salary desired. Advancement for party who makes good. Write "Dustrious," care of MoToR Boating.

FOR SALE—Speed and comfort, 34 x 7 Runabout with substantial top. 60 to 70 H.P. 18 actual miles. Paragon Gear Safety starter. Perfect. \$8.00. Cost \$24.00. J. E. Quail, Quincy, Mass.

3 1/2 H.P. Marine Engine in first class condition, a bargain at \$18.00. A. H. Sellner, Faribault, Minn.

BARGAIN—6-cylinder, 60 H.P. medium duty marine engine, with full equipment, in good condition, \$300.00. E. S. Bellows, Cor. 1st Ave. 1st Street, Mount Vernon, N. Y.

FOR SALE—6-cylinder, 60 H.P. Peerless auto engine, complete, ready to run, a bargain for quick sale. Address C. C. Rucker, K. & H. Hotel, Clarksburg, W. Va.

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7564 line increase!

This Show issue represents a gain of 7564 lines over last February—also a gain over the Show numbers of 1914 and 1915, banner issues of these years.

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Look First to the Engine

(Continued from page 23)

keep this noise from the rest of the boat is to make the engine compartment as sound-proof as possible with double bulkheads lined with a thick layer of felt.

There is often an annoying rumble from the shaft. This noise can be cut down a great deal by fitting intermediate bearings so that no unsupported part of the propeller shaft is longer than seven feet. These intermediate bearings, as well as the stern bearing and stuffing box, should all be fitted with grease cups. The rattling of doors and windows can be obviated by having all doors hung on spring hinges and fastened with spring fasteners against rubber stops. Windows can be quieted with small wooden wedges, which should be fastened to the window ledge with a piece of cord or a chain to prevent loss. Also keep whatever rigging there is set up tight.

Dirt, like noise, can usually be traced to the engine. Unless the latter is of the all-enclosed type, there should be some means of preventing oil from being thrown about the cabin or cockpit. If it is practicable, cover the entire motor with a box, or at least with oil guards at the sides. Either a copper or galvanized pan should always be under the flywheel so that no bilge water can be picked up and thrown. If the motor is installed either forward or aft of the cabin there should be a water- and oil-tight bulkhead between it and the cabin to prevent any drippings from the motor mixing with the bilge water, and floating under the cabin, where it will be thrown up in the lockers when the boat rolls. This will necessitate leading a separate pipe from the far side of the water-tight bulkhead to the bilge pump, providing the latter is permanently mounted, as it always should be. Never keep tools in the same locker with the oil cans. The best practice is to separate a metal-lined box for the cans. Always wipe all tools clean after use, and have several pieces of canvas to lay on the floor about the engine when taking the machine apart.

G. T. W.,
Yonkers, N. Y.

The True Meaning of Service

(Continued from page 21)

likely to be ignored by the owner who considers it superficial and of no importance to the engine builder. But he should remember that unlike the automobile, a marine motor must be equipped to meet the particular conditions of a certain boat. The sales department has previously served the buyer in recommending the type and model of engine; the service department must serve by equipping that engine for the boat it is to be installed in with such equipment that it may operate under as nearly ideal conditions as is possible.

To render adequate service the department must know, for instance, if there is sufficient clearance in the boat to permit the use of the standard-sized flywheel, or whether a special flywheel must be employed. Propeller diameter and pitch are tremendously important points of which the service department should be informed—and also be able to give skilled advice concerning. The lengths of propeller shafts and their tapers, too, should be recorded. How many owners know the taper per foot of their propeller shaft or the size keyseat they are using? Yet the manufacturer cannot supply spare parts when needed without having such information on record. And he can obtain this information from but one source—the owner or his engineer, sometimes through the medium of the local dealer.

Perhaps the most important function of the service department, however, is that of curing the sick engines which have become diseased through careless or ignorant handling. It is often the unpleasant duty of the service department to decide the reasons for breakdowns and minor troubles and to discover upon whom the responsibility rests, whether from original imperfections or from neglect or incompetent handling. Each individual case presents a distinct problem and must be solved as carefully and impartially as possible. It is sometimes very difficult to convince the owner that the manufacturer is not to blame, especially when he knows that if he yields he will receive a bill of repair costs. No one would contend that the manufacturer should bear the expense of this neglect on the part of some one else, but as a matter of fact, he frequently does in order to preserve peace and insure future good will.

There are instances, of course, when it is the manufacturer who is apparently unreasonable. One clever owner of a motor of other than superior grade built by a concern of other than superior reputation, whose patience was finally sorely taxed, hit upon an expedient which produced the desired results. Finding that the manufacturers were deaf to his oft repeated entreaties and threats, and would not give him what seemed to be his due, he threw out his motor one fine day upon a southern mud flat, directly opposite an exclusive and fashionable hotel of large caliber, and erected over it a sign which read: "Here lies the remains of my motor. This is all the motor is good for." A photograph of the sign was sent to the manufacturer, who sent a new engine down on the first train with a man from the factory to install it.

It is very important that every prospective buyer of a marine engine should consider in advance where he can receive aid when necessary and how expert that aid will be. It is the function of the up-to-date service department to furnish competent mechanics when needed. But no marine house can employ enough mechanics at the factory in the winter to meet the demands for them in the field in summer. To supplement its own factory experts, therefore, the service department should maintain a list of all expert professional operators of that make of engine in all parts of the country. Then when a trouble call comes in from a distant point, the names of all such operators in that locality should be sent to the owner so that he may make his own selection.

Well equipped service stations are another important branch of the service department. Many of the larger manufacturers have followed the example of

(Continued on page 68)



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AMONG THE CLUBS

Miami Midwinter Regatta Postponed

Announcement was recently made that the Miami Midwinter Regatta, to the success of which Carl G. Fisher is bending every effort, has been postponed to February 15, 16 and 17. Other postponements are as follows: The Miami-Nassau race to February 23 and 24; the Miami-Palm Beach Pier Head race to March 10; the Key West-Miami event to March 17, and the Palm Beach Pier Head-Miami race to March 24. At the present time there are five fast boats being completed for these races that could not be shipped from New York in time to compete on the original dates, and it was on account of these boats that the racing committee decided to make these postponements.

Trapshooting in the Yacht Clubs

William H. Johns, commodore of the Bayside Yacht Club, Bayside, L. I., in his annual December report, has the following to say about trapshooting: "In our trapshooting work, 26,326 shots were fired during the season, and the interest in this splendid winter sport is growing with every year."

The above seems to express in very few words the attitude and feeling of many clubs, not alone gun clubs. The sport has made wonderful progress in the last few years and is now an important feature of many country, golf and yacht clubs.

U. M. B. C. Prospering

The Undercliff Motor Boat Club of Edgewater, N. J., is situated on the Hudson River, directly opposite Grant's Tomb. Although organized June 19, 1915, with only ten members, this club now boasts of eighty-one members and a fleet of thirty-two boats. Evidence of the rapid strides made is shown in the possession of a beautiful clubhouse with two-story porch, stage, dance floor, player-piano, kitchen and dressing room. During the past season the fleet enjoyed runs to Great Kills, Port Washington and Croton Point, where races, water sports and various games were held. The entertainment committee kept things lively by giving a dance, ball, stag, euchre, barn dance or lecture on the average of once every two weeks.

At the January meeting the following officers were elected: Chas. Bevers, commodore; Thord Einarson, vice-commodore; Andrew Peters, rear-commodore; Wm. Schalk, fleet captain; Robert Hillin, recording secretary; Harry F. Cunningham, financial secretary, and D. Belding Stow, treasurer.

The club is open for about twenty more desirable members, boat owners preferred. Full particulars can be obtained by addressing the treasurer, D. Belding Stow, Edgewater, N. Y.

P. Y. C. Elects

At the annual election of the Pensacola Yacht Club,

the following officers were elected for this year: E. W. Goodhart, commodore; H. S. Merwin, vice-commodore; J. H. Cross, rear commodore; Dan Shepard, fleet captain; F. F. Bingham, fleet lieutenant, and W. C. Fredric, secretary-treasurer.

Another New Club Is Active

The following officers have been elected by the Motor Boat Club of Jamaica Bay, of Canarsie, L. I., to serve for the year of 1917: Joseph Yenser, commodore; Charles H. Greene, vice-commodore; Dr. L. C. Helmer, rear commodore; James Connell, fleet captain; William Schroeder, fleet surgeon; Louis Benson, treasurer; James T. Connell, financial secretary; John Carlton, corresponding secretary, and James A. Palmer, recording secretary. Board of Trustees: J. A. Smith, A. Zwilling and Louis Golly.

The club is starting the year 1917, its second year as an incorporated body, in a healthy condition, owning the large piece of waterfront property on which its house is located, and having an active membership of forty-six, with a fleet of thirty-one boats. During the year 1916 an average of seventeen boats from this club participated in the closed and open races of the Yacht Racing Association of Jamaica Bay and various clubs situated on Jamaica Bay, and the secretary announces that its members succeeded in taking the largest number of trophies of any individual club in the Y. R. A. of J. B.

Are the A. P. B. A. Rules Fair?

(Continued from page 34)

and handicapped according to the following

$$\text{Rating} = 11 \sqrt{\frac{LWL \times HP}{MS}} + 11$$

and that the boats in other divisions be handicapped under existing rules as follows:

Division 2. Express cruisers

$$\text{Rating} = 18 \sqrt{\frac{LWL \times HP}{MS}}$$

Division 3. Open boats

$$\text{Rating} = 18 \sqrt{\frac{LWL \times HP}{MS}}$$

Division 4. Displacement racers

$$\text{Rating} = \frac{300}{\sqrt{\frac{W}{HP}}}$$

Division Hydroplane

$$\text{Rating} = \frac{400}{\sqrt{\frac{W}{HP}}}$$

On account of the change in the rule for handicapping cruisers (Division 1) and the change in horsepower formula for express cruisers (Division 2) it will be necessary to revise the definitions of cruisers and express cruisers to take account of these changes. It is suggested that the definition of cruisers and express cruisers under Rule VI be made to read as follows:

Division 1. Cruisers. A cruiser is a motor boat whose rating does not exceed $7\frac{1}{2}$ times the square root of the waterline length as calculated by the formula for determining the rating of cruisers, with bortha, fixed and sanitary plumbing, etc., etc.

Division 2. Express Cruisers. An express cruiser is to be defined as a cruiser except that the minimum waterline breadth restriction shall not apply and that the required height of space shall be $12\frac{1}{2}$ per cent. instead of 16 per cent. up to 6 feet for $1\frac{1}{8}$ the waterline length, and $\frac{1}{4}$ the maximum beam—and the rating may exceed $7\frac{1}{2}$ times the square root of the waterline length.

The express cruiser class shall also include those boats which would normally fall in the cruiser class except that their rating exceeds

$$7\frac{1}{2} \sqrt{LWL}$$

In determining whether a cruiser's or express cruiser's rating exceeds $7\frac{1}{2}$ times the square root of the waterline length, the formula for determining the rating of cruisers shall be used.

NOTE: To change the existing rating of a cruiser to the rating under the suggested rule, simply divide her present rating by 18, then multiply the result by 11, and add 11 to the product.

For example, if the existing rating of a certain boat is 36, then her new rating will be

$$\left(\frac{36}{18} \times 11\right) + 11 = 33.$$

TABLE I
Performances of Cruisers

No.	Boat	Rating	Actual Speed-Knots	Seconds per Mile
1*	Cero	32.15	8.5	424
2	Oriana	35.5	8.67	415
3	Heather	40.86	7.9	456
4	Spars Time	42.06	7.9	456
5†	La Ola	46.57	8.14	442
6†	Vision	34.83	8.48	556
7	Maryn	38.61	8.85	525
8	Zoe	37.00	8.21	580
9†	Dora II.	30.67	7.35	490
10†	Naomi	30.8	7.26	495
11	Clio	30.88	8.95	517
12	Acushla	32.13	7.51	492
13†	Bedouin	34.16	8.19	438
14	Opechee	39.95	8.67	415
15	Margaret N.	40.27	7.62	472
16†	Margaret	40.35	8.37	430
17†	Liwaso	41.31	8.81	407
18	Mulford II.	42.78	8.92	520
19	Myelma	43.25	8.92	520
20	Edyl	27.54	8.05	595
21	Myrna	54.54	10.0	360
22	Reba L.	60.30	9.04	397
23*	Eva Dor.	42.81	9.04	397
24†	Lady Jane II.	45.59	9.10	395
25†	Frances II.	47.95	9.35	385
30	Satsun	32.66	7.41	485
32*	Intrepid	31.2	7.83	460
34	Bonnie Doon	54.08	9.98	360
35	Kichicoquillas	40.9	7.93	454
36†	Lacola	36.57	8.88	523
37	Bonita	36.90	8.33	570
38	Taureg II.	33.48	8.78	531
39	Margaret	41.40	7.90	455
40	Eugenia	37.54	8.40	429
41†	Marguerite II.	53.28	10.72	335
42	Jennie S.	31.80	8.94	519
44†	Naomi	37.53	7.38	487
45†	Lacola	36.57	7.78	470
50	Reba D.	33.08	8.82	537
51	Josephine II.	26.02	7.95	452
52*	Chester	38.22	7.55	476
53	Wilhelmina II.	46.12	8.90	405
56	Reba L.	43.86	8.52	423
57	Drofdar	29.16	5.94	605
58†	Kismet	45.00	8.38	430
59	Margaret	40.46	7.58	474
60	Aloha	52.12	8.90	521
61*	Bedouin	34.16	8.66	416
62*	Naomi	30.8	7.61	473
63*	Alhambra	34.85	8.61	418
64*	Dora II.	30.67	7.54	477
65*	Mascot	39.56	9.09	396
66*	Acushla	32.13	7.50	480
67*	Opechee	39.95	8.76	411
68*	Helma	45.31	9.77	360
69*	Gnive	45.53	9.60	376
70*	Lady Jane II.	45.59	9.45	382
71	Maryn	38.61	7.82	460
72	Alice	39.96	7.9	456
73†	Margeth	40.98	7.8	460
74	Ocean City	40.35	7.65	470
75	Reba L.	60.30	10.45	—
76†	Kismet	45.72	8.36	432
77	Ariel	49.85	8.53	422
78†	Dora II.	30.65	6.98	516
79†	Bedouin	34.16	7.50	480
80†	Alhambra	34.85	7.60	474
81†	Marguerite II.	53.28	10.10	356
82†	Bedouin	34.16	7.50	480
83†	Dora II.	30.65	6.70	537
84†	Alhambra	34.85	7.50	480
85†	Margeth	40.98	7.95	453
86	Zoe	37.00	6.75	534
87*	Aloha	42.12	7.00	540
88†	Marguerite II.	53.28	9.71	370
89†	Helma	45.13	8.30	425
90†	Kismet	45.72	8.03	448
91†	Frances II.	47.95	7.96	452
92†	Bedouin	34.16	7.54	477
93†	Dora II.	30.65	6.75	534
94†	Alhambra	34.85	7.52	478
95†	Liwaso	41.31	8.90	450
96*	Eva Dor.	42.81	7.60	474
97†	Lady Jane II.	45.59	7.93	454
98†	Bedouin	34.16	7.50	480

No.	Boat	Rating	Actual Speed-Knots	Seconds per Mile
99†	Dora II.	30.65	6.90	530
100†	Alhambra	34.85	7.54	476
101†	Naomi	30.08	6.65	541
102†	Liwaso	41.31	8.17	441
103†	Helma	45.31	8.45	426
104†	Margaret	40.35	7.58	475
105†	Lady Jane II.	45.59	8.05	447
106†	Frances II.	47.95	8.30	435
107†	Margaret	40.35	7.50	480
110	Stranger	34.20	6.22	578
111	Pastime	34.54	6.67	540
112	Broadbill	35.50	7.25	496
113	Normandie	36.00	6.87	524
114	Chum II.	36.94	7.05	511
115	Ruth C.	37.44	6.72	535
116	Lady Marjorie	37.69	6.81	527
117	Marion	37.98	6.88	523
118	Emily B.	38.60	7.38	486
119	Iole	40.73	8.63	447
120	Halcyon	51.80	8.88	405

* Omitted from final study owing to the fact that, for various reasons, performance was not consistent.
† Average of several performances of this boat used in final study instead of results of each race.

TABLE II

Data used in Determining Speed and Rating of the Five Typical Boats, R, S, T, U and V

No.	BOAT R	Speed	Rating
9†	7.00	38.67
10†	6.95	39.80
11	6.75	39.88
42	6.94	31.80
30	7.41	32.66
Average	7.01	31.36

No.	BOAT S	Speed	Rating
13†	7.65	34.16
63	7.52	34.85
2	8.00	35.50
51	7.95	36.02
5†	7.58	36.57
86	8.70	37.00
40	8.40	37.54
Average	7.70	35.95

No.	BOAT T	Speed	Rating
14	8.00	39.95
72	7.90	39.96
16†	7.80	40.35
74	7.65	40.35
59	7.58	40.46
3	7.90	40.86
35	7.93	40.90
73†	7.88	40.98
39	7.90	41.30
17†	8.32	42.66
Average	7.89	40.78

No.	BOAT U	Speed	Rating
53	8.90	46.13
24†	9.10	45.59
89†	8.38	45.13
58†	8.26	45.00
56	8.52	43.86
Average	8.63	45.15

No.	BOAT V	Speed	Rating
34	9.98	54.08
41†	10.30	53.28
21	10.60	54.54
Average	10.69	53.97

† = Average of a number of performances of this boat included.

EGYPTIAN DEITIES

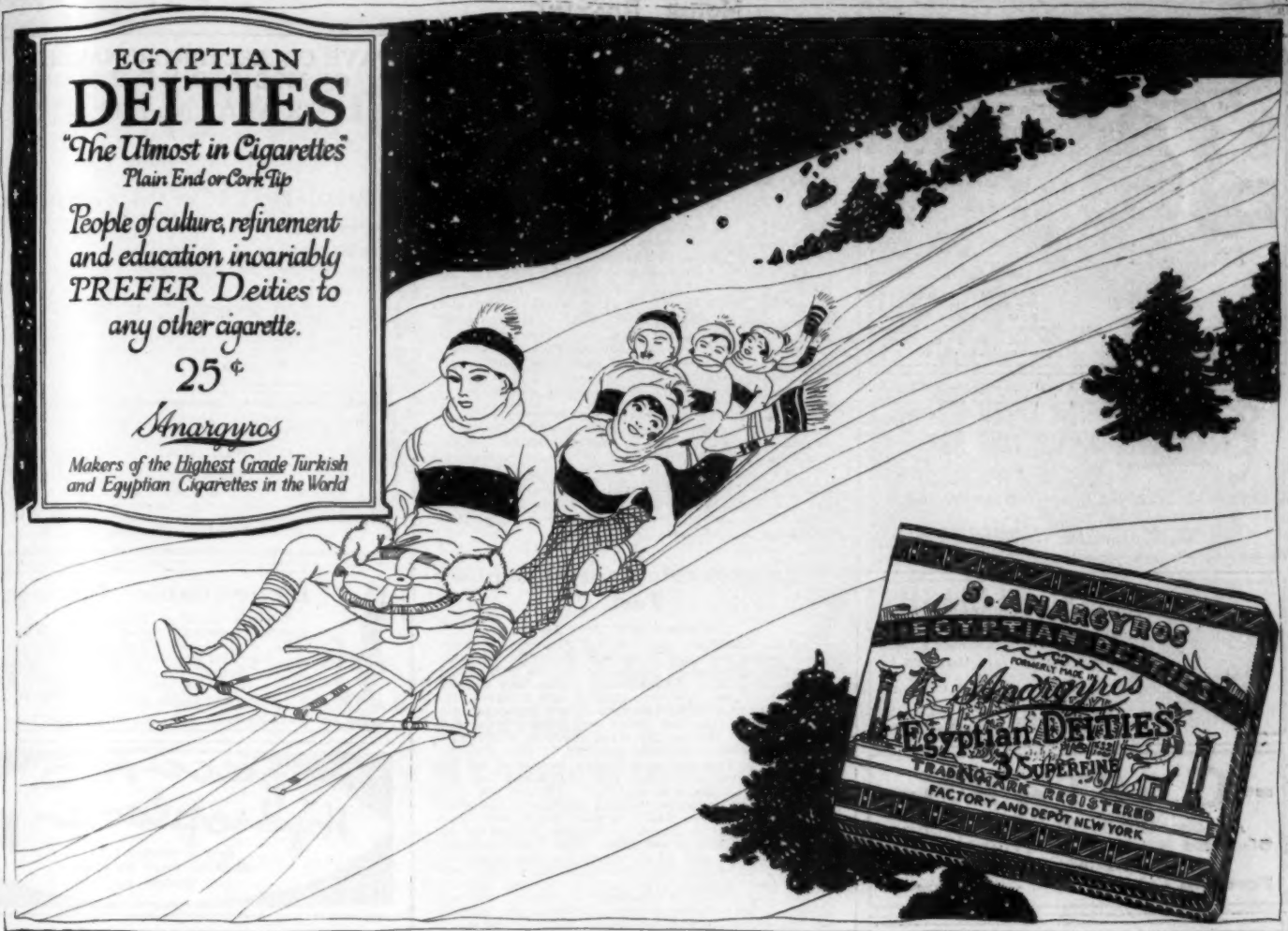
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The True Meaning of Service

(Continued from page 65)

the automobile maker and established complete service stations in localities where a number of their motors are in use. Yet here again, the automobile manufacturer has the advantage, in that his product is more concentrated and located in more accessible places than are the engines of the marine manufacturer. The service station is usually under the charge of the local dealer and distributor. It maintains, at least during the boating months, one or more expert mechanics, who have been thoroughly trained at the factory. The owner whose home port is therefore near a service station may obtain the very best of service. Spare parts may be had from the station at less cost than when ordered from the factory and without any vexatious delays. And whenever a bearing burns out from lack of oil or whenever it is desirable to place the engine in finest tune, as before a race, it is only necessary to deliver your boat at this marine garage, and in a few hours you will receive it again in perfect condition. This is service.

With a better understanding of just what is meant by service as applied to the marine motor industry, will undoubtedly come a greater cooperation on the part of the owner, and it is hoped, a greater amount of confidence in the manufacturer, on the part of the engine user, which cannot fail to result in a mutual and intimate relationship between engine builder and buyer. This is certain to create a more sympathetic advantage hard to estimate.

A Remarkable Express Cruiser

(Continued from page 15)

substance found its way into the oil strainer of one pump and the supply failed. This was at once observed by the man in charge, by the fall of pressure on the oil gauge. The affected engine was stopped, and the strainer removed, cleaned and replaced, the whole operation taking less than fifteen minutes. During this time the other motor was turned up a little faster, so that the average speed could be maintained. After this trouble nothing occurred to stop the running of the engines, and Pattina continued on her way for eleven successive hours, grinding out her 28.8 m.p.h. all the time.

But at 5 p. m. the threatening weather of the afternoon turned into a hail and sleet storm with snow flurries, so that it became practically impossible for the man on watch to see ahead. The trial was therefore concluded, with all aboard feeling that except for adverse weather conditions it could have been continued indefinitely.

The boat herself is eminently a cruiser, and was designed for express cruising between the owner's factory at Quebec and his summer home at the mouth of the St. Lawrence, nearly 500 miles away. Thinking that the occasion might arise when it would be necessary to make the whole distance at full speed, the owner stipulated in his contract that the boat was to maintain 25 knots for eighteen hours. The distance covered in the successful trial was equal to that between New York and Boston, and could it have been possible to stock up with sufficient fuel and oil there is no reason to believe the Pattina could not have been driven on for another week at the same rate.

Next Summer's Cruise Down East

(Continued from page 9)

ment had to step in and clean it out. Passing inside Glovers Rock, off Small Point, we could see Sequin Island with its lighthouse and buildings perched on the top of its high, barren, rocky hills. We were by this time quite a bit ahead of the becalmed sailboats and so loitered about, taking pictures of a group of fishermen hauling their seines with a fine catch of mackerel. With the glistening bodies of the fish jumping and splashing in the nets, and the yellow and blue dories giving the necessary touch of color, it was an attractive scene.

At Pond Island at the mouth of the Kennebec the breeze strengthened—fortunately for the windjammers. Many fine and famous vessels have been launched on the Kennebec, and Virginia, declared by the natives to be the first craft built in America, was put together at Popham Beach on its banks, while at present some units of our new war fleet are being constructed at Bath, nine miles up the stream. The strong tide when unfavorable makes it very difficult for sailboats to navigate the river, and I have seen it extremely lumpy at the mouth when the ebb tide backs a strong wind. Just inside the entrance of the Kennebec is Popham Beach, now a much frequented summer resort, and Fort Popham on what was once called Stage Island. It was here that the first colony sent out of England was located on August 19, 1607. Originally called Sabino, and then Fort Popham, after George Popham, the president of the Plymouth Company which sent it out, it was the first fortification in New England. Georgetown Island was once called Sagadahoc, which is Indian for North-of-the-river.

The run across Sheepscot Bay was uneventful except for the luncheon served in the cockpit and eaten with little difficulty, as Dilla holds her course unusually well. The roasted chicken, a luscious chocolate cake, blueberries and cream were certainly appreciated.

On leaving Sheepscot Bay we rounded the Culkolds and then we came into view of Squirrel Island, whose board walks, beautiful views and well-cared for natural growth of trees make it popular. Squirrel Island lies at the entrance to Boothbay Harbor, where the numerous and attractive shops cater to the tourist's and yachtman's every need and desire. On Mt. Pisgah overlooking the harbor and Linekins Bay is situated the Commonwealth Art Colony, a unique summer school, teaching all the arts and crafts—a delightful place for anyone to spend the summer or even a week or two, as laymen are allowed the privilege of hiring a bungalow or camp on the grounds, whether they wish to study or not.

We rounded Ocean Point on Linekins Neck and then heading for South Bristol, a short way to the Damariscotta River, we picked up a party of friends

(Continued on page 70)

WAVE COLLECTING RUNABOUTS OF MODIFIED V-BOTTOM TYPE GERMAIN BOATS

are safe, dry, comfortable and fast.
Paper patterns, frames, materials, completed boats.
New 14-ft. outboard motor rowboat, plans \$1.90 net.
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GERMAIN BOAT COMPANY, Saginaw, Mich.

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and Power to Spare
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KEYS PISTON RING CO.
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PROPELLER DESIGNS

MADE TO SUIT HULL & ENGINE CONDITIONS
FOR THOSE WHO WISH EFFICIENCY
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DEERING BOAT MFG. CO.
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ARE GOOD ENGINES
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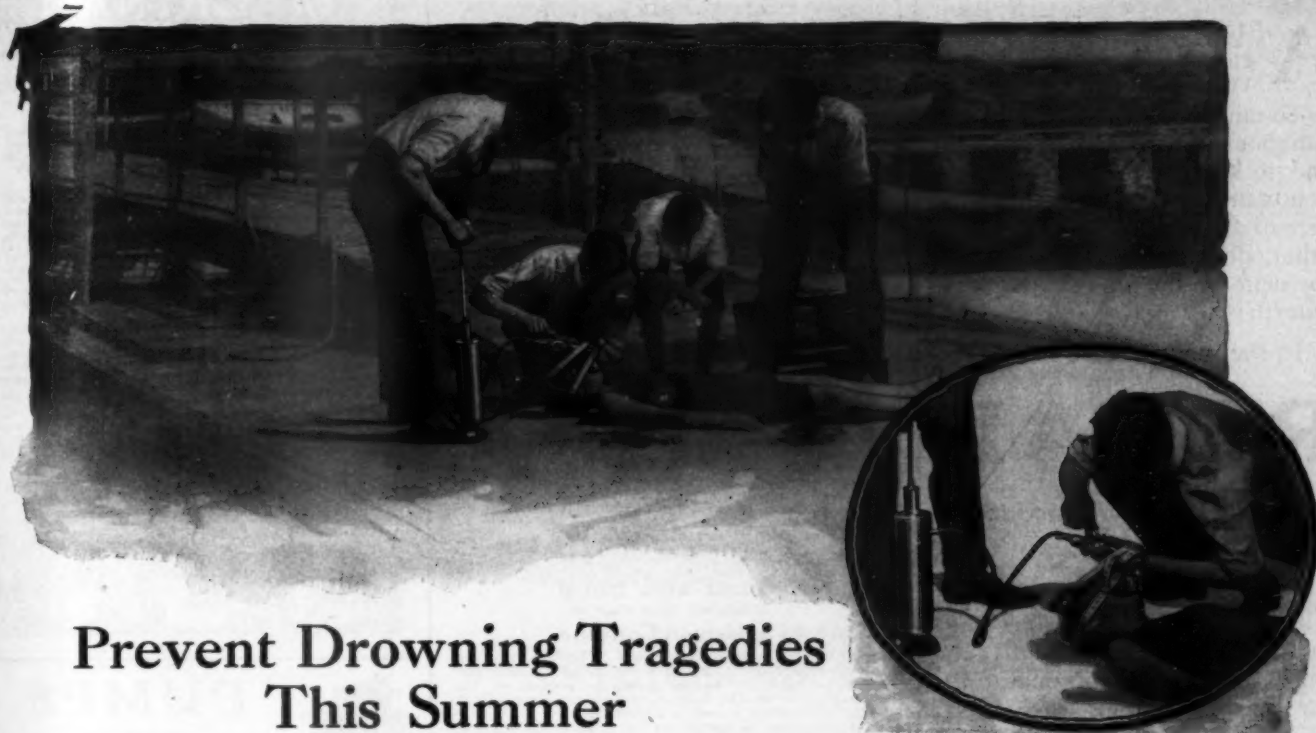
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Made to order at reasonable prices to fit your boat. Light, flexibly strong material—fold easily and quickly on frame of rustless, enameled steel tubing. Perfect fit guaranteed. Write today for catalog.

THE R. L. KENYON COMPANY
800 Albert Street Waukegan, Wis.



Prevent Drowning Tragedies This Summer

YOU may never have been touched by the tragedy of a drowning accident. Your club may have been fortunate enough to escape with close calls and good luck.

But even the strongest swimmer is liable to water accidents. The younger members and youngsters run risks—expose themselves to dangers that only a Pulmotor can prevent from ending disastrously.

Should such an accident occur—and hundreds *do* occur every season—would you have to 'phone for a Pulmotor and then waste precious minutes while it was being hurried to the scene?

It is generally agreed that attempts at resuscitation are invariably more successful when the Pulmotor is immediately applied. To delay its application is recklessly playing with the victim's chances for life.

Now, before the season opens, is the time for you to consider the installation of the Pulmotor, for on your action *now* may depend the lives of some of your club members, your guests, perhaps your own family.

Pulmotors are the standard apparatus for resuscitation throughout the world. They have saved the lives of those apparently drowned after all other means had failed. Where there is a spark of life left, the Pulmotor will nurse it and fan it back to full vigor.

There are two Pulmotors—the standard and Type "B." For your purpose Type "B" is ideal. It is moderate in cost, extremely compact and portable, is hand-operated,

has no upkeep cost, and employs the same physiologically correct principles scientists have approved in the standard Pulmotor.

Its operation is simplicity itself. A few careful readings of the instructions will enable a boatman to operate it successfully. And there is no possibility of even the most excited and inexperienced operator causing the slightest injury to the patient.

Its compactness enables you to stow it in a locker on your yacht, or on the float or club veranda, immediately available in case of need.

Type "B" Pulmotor weighs only 12 lbs., in carrying case with all accessories, and costs only \$115.

Surely this price puts a Pulmotor within reach of every yacht club and yacht owner. But *life*, not price, is the question at issue and it is for this reason mostly that we want you to investigate the new Type "B" Pulmotor. Write us at once on your personal or club letterhead and we will arrange to demonstrate this device at your convenience.

Pulmotors are used in the U. S. Navy and other Federal Departments, by Life Saving Services, the U. S. Volunteer Life Saving Corps, Atlantic City Beach Service, Hospitals, etc.

Why Type "B" Pulmotor Does More Than Any Other Known Method

Assists in clearing the lungs of water.

Fills and empties the lungs with air to their normal breathing points of inhalation and exhalation.

Signals operator when to change from inhalation to exhalation.

Signals patient's first attempt to resume natural breathing.

Aids operator in assisting patient to full recovery after breathing is recommenced.

Enables operator to create any combination of alternate exhalation and inhalation lung pressures the case may call for.

Indicates instantly whether there is anything in the throat clogging the air passages to lungs.

Prevents any possibility of gagging, choking or suffocating.

The DRAEGER Oxygen Apparatus Co.

414 First Avenue :: :: :: Pittsburgh, Pa.

66 *Type "B"* 99

Pulmotor

The genuine always bears the name DRAEGER

ABOVE all things Regal engines are dependable. Wherever you find them, in commercial boats, cruisers or runabouts, they are ready to run and to keep running as long as you want them. Upon this feature of an engine, more than any other, depends in turn your enjoyment or the success of your enterprise.

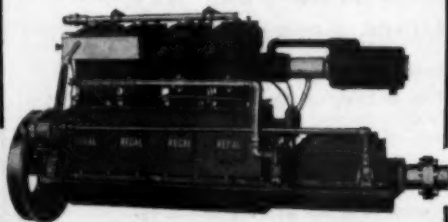
In the manufacture of

REGAL

engines reliability is not sacrificed to lightness or to attain high revolutions. Their weight and their speed are consistent with the best marine engineering practice, which demands that an engine be capable of operating for long continuous periods at its maximum rated power and speed.

We want you to consider a Regal engine, but in any case examine the engine you are considering. It is absolutely necessary that it be capable of such performance to give you dependable service, and service extending over more than one season.

Regal Gasoline Engine Co.
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Prevent Drowning! Equip your boat with **Universal Life Saving Equipment**. Softer, lighter, more buoyant than cork. Support heaviest person indefinitely. Approved by U. S. Steamboat Inspection Service. Life Preservers, \$2.00 up. Motor Boat cushions, \$1.25. Postpaid anywhere! Send for free booklet "Safety on the Water."

Universal Safety Mattress Co., Inc.
Dept. M, 31 Nassau St. New York City

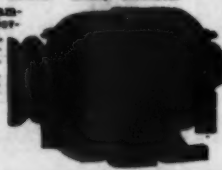
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Special 12-volt, 10-ampere Generators. Also Governors, Automatic Cut-outs, Ammeters and Storage Batteries. Write today for Bulletin. Attractive dealers' proposition.

The Carleton Company
166 Summer Street
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Carleton Generator

Especially adapted for marine service. Fully enclosed. Rated at 7 volts, 7 amperes. Driven by the engine and keeps any battery charged, furnishing current for ignition and for all lights, whether running or at anchor. Easily installed.



Next Summer's Cruise Down East

(Continued from page 68)

and took them aboard, to see the finish of a race between the sailboats outside Christmas Cove. A fascinating sight it was, with the setting sun reflected on spinnakers and balloon jibs as the boats passed Ram Island Light and squared away for the last leg of their race from Portland to Christmas Cove. It was a splendid finish, the boats being fairly well bunched, though far enough apart to make their positions certain. As the yachts came to anchor in Christmas Cove, they reminded one of a flock of sea gulls coming to rest on the water with a flutter and folding of their wings. It was a picture never to be forgotten, this wonderful little harbor with its narrow entrance guarded by two large rocks, crowded with yachts of every size and description from the large schooner or motor cruiser down to the 18-foot knockabout or runabout. The high wooded hills, dotted with hotels and cottages, looked down upon the dinks darting here and there, and upon friends who called back and forth and made preparations to go ashore.

Just before colors came Sky Pilot, a large black aloop of the Friendship type, which was the last of the fleet to arrive. As she received her gun a great cheer went up and every bell, whistle and horn joined in a salute for three or four minutes—a hearty welcome for one who is dearly loved by all Boston Yacht Club members: Ex-Commodore Edward P. Boynton, the organizer of the annual Down East cruise. His famous entertainments at his summer home at Five Islands, Me., are accounted red-letter days in the club's history.

The scene changed as darkness fell, and the myriad reflections of riding lights and Japanese lanterns sparkled and scintillated in the water. Red and green fires on the shore, with the twinkling lights of hotels and cottages seemed to rival the witching radiance of the moon, so serenely shining down on a veritable fairyland.

(To be continued)

Yard and Shop

(Continued from page 49)

Kyanize Salesmen Convene

Living up to the house legend "There is only one thing that can be improved by being broken—and that is a record," the salesmen's convention of the Boston Varnish Co. held in the closing days of the year just ended proved a ten-strike.

The convention opened at the Boston City Club at 9 o'clock Wednesday morning, December 27, and for the next three days there was crowded into every minute of time more solid vitalizing business entertainment than any one of the forty or so salesmen assembled thought possible.

Business entertainment seems the only fitting term to describe the convention, for the discussion, the addresses, the various demonstrations on selling points and selling talks, were all entered into with such enthusiasm that there was not a single dull moment.

Salesmen were present from east and west with the men covering Canadian territory and managers from the various branches. Each man was given an opportunity to be heard, and as a result the sales force has started out on 1917 with not a single problem for which it has not a solution and with unbounded enthusiasm for the Kyanize line.

The convention was called to order after a reception to the salesmen, and addresses of welcome with general remarks were given by the officers of the company. Business conditions were then outlined by the managers of the various territorial districts. "The Versatility of a Varnish Salesman," by W. H. Ennis, manager of the Canadian department; an address on "Enthusiasm," by Henry Knott, vice-president of the Greenleaf Advertising Agency; a demonstration "The Strongest Selling Point," by Harry B. Winne, and "Office Helps to Salesmen," by Harry H. Little, concluded the first morning's session.

An address that proved one of the most interesting and helpful of the convention showed the importance of the small town field. This was given by Walter W. Manning, of *Women's World*. Charles H. Tewksbury, manager of the Chicago branch, talked on the salesmen's relation with the company, and E. M. Hook, of Washington, D. C., took as his subject: "Earnestness in Selling Kyanize."

The second day's session was given over in the morning to a series of talks on the various products of the company. Elmer E. Tobey, general superintendent, gave intimate details of the manufacture of Kyanize Water-proof Floor Finish; Garner H. Moise, manager of the enamel department, on Kyanize White Enamel; W. H. Ennis, manager of the Canadian department, on Kyanize Water-proof Spar Finish; H. A. Hall gave a vast amount of general information on Kyanize interior finish, Semi-gloss and No-lus, and Walter A. Putnam and C. L. Wood concluded the morning's remarks by discussing the manufacturing trade.

Most of the afternoon session was devoted to the question of advertising. The national advertising campaign which the Boston Varnish Co. conducts was explained by A. E. Greenleaf, president of the Greenleaf Agency, and by Lewis E. Kingman, director of service of the Greenleaf Agency. How to use this advertising matter and just what it consists of was gone into by Mr. Lord and by W. H. Gerke.

Probably the most amusing and at the same time the most instructive part of the day's activities was the selling contest that concluded the business end of the convention.

The third and closing day of the convention was spent at the factory. Here were more surprises, for the increases made to the plant at Everett, consisting of several new stacks for the making of Kyanize, were found to have increased the capacity to take care of the vast increase in output which has been demanded.

Colombe Joins Scripps Export Force

Owing to an ever-increasing business in the export division of the Scripps Motor Co., with offices at 17 Battery Place, New York City, it has been found necessary to add M. H. Colombe to the staff as assistant export manager.

Mr. Colombe has long been identified with the export trade. He gained his first experience in the offices of Ray V. Warman when the present export manager of the Scripps Motor Co. was located at Detroit. He was thereafter connected with the *American Exporter*, having charge of the French edition of that publication for a number of years. He re-enters the marine engine field with a broad knowledge of export trade gained from these connections.

THE COAST LINE TO MACKINAC
DETROIT, CLEVELAND, BUFFALO, NIAGARA FALLS. TOLEDO, PT. HURON, ALPENA, ST. IGNACE.

A REAL VACATION

The D. & C. Line Steamers embody all the qualities of speed, safety and comfort. The freedom of the decks, cool, refreshing lake breezes and commodious state rooms make life aboard these floating palaces a source of enjoyment.

"D. & C. A SERVICE GUARANTEE"

Daily service between Detroit and Buffalo and Detroit and Cleveland. Day trips during July and August, as well as two boats out of Detroit and Cleveland every Saturday and Sunday nights during those two months. FOUR TRIPS WEEKLY FROM TOLEDO AND DETROIT TO MACKINAC ISLAND AND WAY PORTS—From June 25th to Sept. 10th. SPECIAL STEAMER CLEVELAND TO MACKINAC ISLAND. TWO TRIPS WEEKLY. NO STOPS ENROUTE EXCEPT AT DETROIT EVERY TRIP. Daily service between Toledo and Put-In-Bay, June 10th to Sept. 10th.

RAILROAD TICKETS ACCEPTED ON D. & C. Line steamers between Detroit, Cleveland and Buffalo, either direction. Send two cent stamp for illustrated pamphlet and Great Lakes Map. Address L. G. Lewis, G. F. A., Detroit. DETROIT & CLEVELAND NAVIGATION COMPANY P. H. McMillan, Pres. A. A. Schantz, V. P. & G. M.

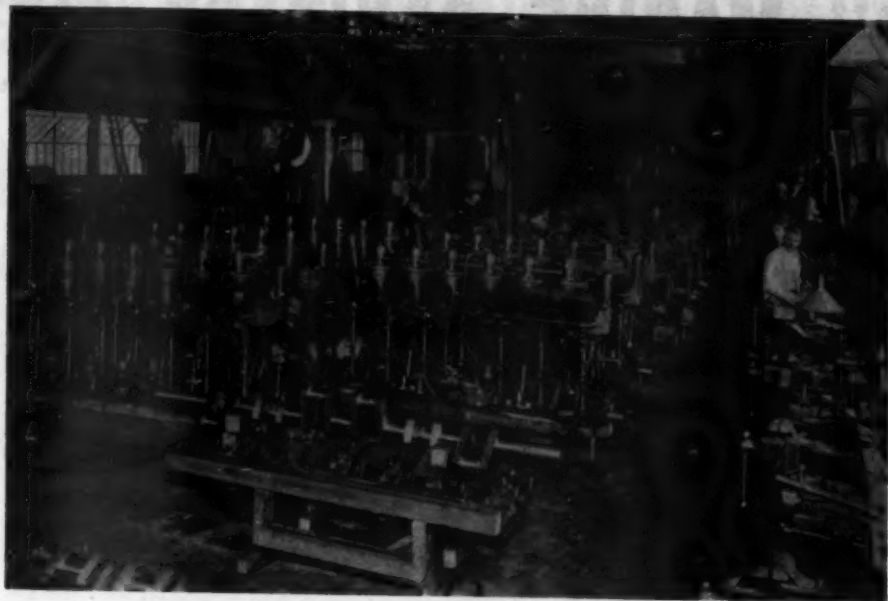


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Can See

THE STANDARD ENGINE

being built and tested out.



Here you not only see the finished engine in its newness—You see the raw material, the tools, the machines, the men, the tremendous forces that, organized into a single working unit, give you this engine.

The STANDARD SHOPS present a motion picture of modern industry—teeming with interest and a revelation to the engine owner.



Our invitation is most sincerely extended. Take C. R. R. of N. J. to Pacific Avenue, Jersey City. Only 15 minutes from Cortland Street Subway Station.

Prompt deliveries are more and more difficult. Delay may be costly.

Back of the Standard Guarantee is the

Standard Motor Construction Company

178 Wheton Street, Jersey City, N. J.

"SANDS" MARINE SANITARY FIXTURES

Their Quality, Service, Construction and Operation is the Best in the World. They Have Many Artistic and Mechanical Features Possessed by No Other Fixtures and Are Designed to Permit Installation at Reasonable Cost.

SIXTY-EIGHT YEARS MAKING MARINE FIXTURES MEANS SOMETHING



"National," Plate S-2010
(Patented—Copyrighted.)

The "National" Pump Water Closet has extra heavy Vitro-Adamant Oval Flushing rim Pedestal bowl fitted with 5" combined supply and waste pump. Complete with Mahogany seat and cover. Pump white enameled, N. P. trimmings.....

\$145.00

SANDS "PATENT AUTOMATIC SAFETY SUPPLY FOOT VALVE" CONTROLS INLET. SANDS "PATENT BACK WATER CHECK VALVE" CONTROLS OUTLET. NO FLOODING WITH SANDS FIXTURES.



"Huron," Plate S-2035
(Patented—Copyrighted.)

The "Huron" Pump Water Closet has new style extra heavy Vitro-Adamant flushing rim hopper bowl, 5" combined supply and waste pump. Complete with Mahogany seat and cover. Pump white enameled, N. P. trimmings.....

\$132.50

The "Winner" is the Best Closet Ever Offered for the Price

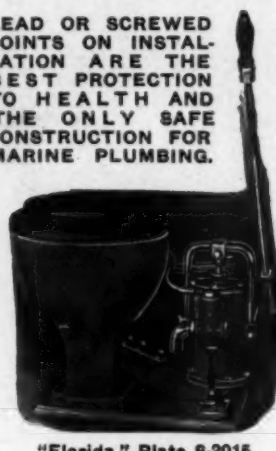


Plate S-127

The "Grandy" Round Way Sea Cook for use on discharge pipe of closets and lavatories. This sea cook is similar to Plate S-126 except water way, which is full opening and clear round way, thus eliminating the possibility of paper or any foreign matter from clogging sea cook. Made in sizes as follows:

	Price
1 inch.....	\$4.00
1 1/4 inch.....	5.50
1 1/2 inch.....	7.50
2 inch.....	11.00
2 1/2 inch.....	16.00

LEAD OR SCREWED JOINTS ON INSTALLATION ARE THE BEST PROTECTION TO HEALTH AND THE ONLY SAFE CONSTRUCTION FOR MARINE PLUMBING.

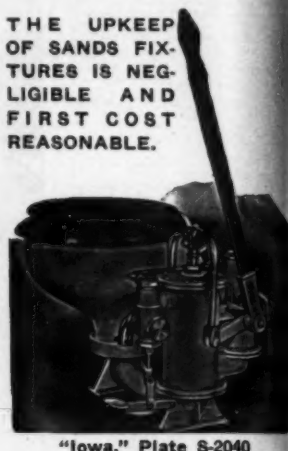


"Florida," Plate S-2015
(Patented—Copyrighted.)

The "Florida" Pump Water Closet has new style extra heavy oval pedestal Vitro-Adamant bowl, improved supply and waste pump having 4" cylinder. Complete with Mahogany seat and cover. Pump white enameled, N. P. trimmings.....

\$112.50

THE UPKEEP OF SANDS FIXTURES IS NEGLIGIBLE AND FIRST COST REASONABLE.



"Iowa," Plate S-2040
(Patented—Copyrighted.)

The "Iowa" Pump Water Closet has latest style Vitro-Adamant extra heavy oval flushing rim, straight back hopper bowl, fitted with 4" supply and waste pump. Price with quartered oak, cabinet finish seat and cover, pump rough with polished trimmings.....

\$85.00



The "Frisco," Plate S-2046
(Design Patented—Copyrighted.)

The "FRISCO" PUMP WATER CLOSET, extra heavy Vitro-Adamant oval hopper bowl, 5" combined supply and waste pump. All metal parts smoothed. Detachable N. P. metal handle with wood grip.

Plate S-2045 Polished oak seat, no cover.....

Plate S-2046 Polished oak seat and cover.....

Dimensions: Width 24", front to back 21", height 17 1/2". Approximate weight: Net 60 lbs. Shipping, 160 lbs.

\$59.00

60.00



"Winner," Plate S-2061
(Patented—Copyrighted.)

The "Winner" Pump Water Closet, Vitro-Adamant Round Hopper Bowl, oak seat, N. P. brass hinges, 3 1/4" inch supply and waste pump, "Sands" Special quick opening supply valve.

Plate S-2060 Fixture as described with oak seat.....

Plate S-2061 Fixture as shown with oak seat and cover.....

Dimensions: Front to back 14", width 18", height 14". Shipping weight, 75 lbs.

\$19.00

20.00



"Knockabout," Plate S-34
(Patented—Copyrighted.)

The "Knockabout" Improved Pump Water Closet, Vitro-Adamant round flushing rim bowl, 3 1/4" combined supply and waste pump, "Sands" patent automatic safety supply foot valve, and "Sands" patent back-water check valve.

Pump rough, finished trimmings, oak seat and cover.....

add.....

Mahogany seat and cover, add.....

Weight: Net, 46 lbs.; gross, 75 lbs. Dimensions: Front to back 19", width, 17 1/2"; height, 14".

\$52.50

1.50



The "Bow" Closet, Plate S-2050
(Design Patent Applied For.)

The "Bow" Closet, Vitro-Adamant bowl, 2 1/2" pump, located at rear, fitted with swing handle. Quick opening supply valve. Space occupied, 15x24".

Pump rough, with finished trimmings, oak seat, N. P. hinges.....

Dimensions: Front to back 23", width 14", height 12".

Net Weight, 35 lbs. Shipping, 70 lbs.

\$30.00



"Improved Mohawk," Plate S-2030
(Patented—Copyrighted.)

The "Improved Mohawk" Pump Water Closet, extra heavy Vitro-Adamant oval flushing rim hopper bowl, Composition supply and waste pump 3" cylinder.

Pump rough with polished trimmings, oak seat and cover.....

A high-grade fixture having new style bowl, especially intended for owners' quarters of small cruises.

\$70.00



"Yukon," Plate S-31A
(Patented—Copyrighted.)

The "Yukon" Pump Water Closet, Vitro-Adamant oval flushing rim pedestal bowl, fitted with oak seat and cover. Composition TWO AND ONE-HALF (2 1/2) INCH combined supply and waste pump, "Sands Patent Automatic Safety Supply Foot Valve." Complete as described.....

add.....

If mahogany seat and cover, add.....

Dimensions: Front to back, 18"; width, 19"; height, 16". Shipping weight, 90 lbs.

\$55.00

2.00



"Crusoe," Plate S-40
(Patented—Copyrighted.)

The "Crusoe" Water Closet, with Vitro-Adamant round flushing rim bowl. Combined supply and waste pump. Lever handle supply valve. Oak seat and cover, with N. P. hinges.

Pump as described, with finished trimmings.....

Pump white enameled, N. P. trimmings, add.....

Dimensions: Front to back, 14"; width, 18"; height, 14". Shipping weight, 75 lbs.

\$42.50

5.00



"Commercial," Plate S-2070
(Patented—Copyrighted.)

The "Commercial" Closet designed for heavy duty in work heads, above water line only. Vitro-Adamant bowl. Galv. iron valve box on galv. iron base plate. Composition flush valve. Galv. iron lever with composition axle and valve.

As shown with metal parts white with N. P. trimmings, oak seat and cover.....

Shipping weight, 160 lbs. Space occupied, 21" x 17".

\$49.00



"Malta," Plate S-44
(Patented—Copyrighted.)

The "Malta" Pump Water Closet, round flushing rim bowl, composition supply and discharge pump, quick-opening supply valve, N. P. hinges.

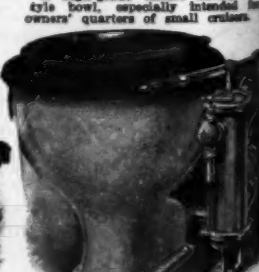
Pump rough, with finished trimmings, oak seat.....

If with mahogany seat, add.....

Dimensions: Back to front, 14"; width, 18"; 13" to top of seat. Shipping weight, 70 lbs.

\$30.00

1.00



"Utah," Plate S-39
(Patented—Copyrighted.)

The "Utah" Pump Water Closet, Vitro-Adamant oval flushing rim pedestal bowl, TWO AND ONE-HALF (2 1/2) INCH combined supply and waste pump, lever handle quick operating supply valve, polished trimmings, pump rough.

Complete as shown.....

If with mahogany seat and cover, add.....

Dimensions: Front to back, 18"; width, 18"; height, 16". Shipping weight, 90 lbs.

\$45.00

2.00

Regardless of the abnormal high prices of material and labor, list prices are unchanged. Selling prices necessarily are advanced to meet conditions ranging from list prices as net up to 50% advance over list based upon cost of material.

Complete line of closets, lavatories, sea-cocks, pumps, basins, sinks, and specialties described in NEW Catalogue "R" ready in near future, sent free on request.

A. B. SANDS & SON COMPANY

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THE RECOGNIZED STANDARD OF THE WORLD

A Tribute to the Quality, Service and Integrity of "SANDS" Fixtures by People Who Know and Demand the Best



Plate S-150

The "diswood" Folding Lavatory, with Vitro-Adamant oval basin, N. P. copper lining, N. P. brass double-acting pump, N. P. brass trimmings.

Quartered oak, polished finish.....\$42.50 Mahogany, polished finish.....44.00

Plate S-152

"Cubor" Folding Lavatory, same as Plate S-150, except with faucet for pressure or gravity supply. Quartered oak, polished finish.....\$37.50 Mahogany, polished finish.....39.00



Plate S-3183

The "Manatee" 14" Vitro-Adamant, Flat Back Lavatory, with N. P. Basin Pump and waste fittings; no trap.....\$22.75

Plate S-3180

The "Manatee" Lavatory, same as Plate S-3183, except with faucet, instead of pump and with N. P. Full "S" Trap.....\$13.35



Plate S-146

The "Hobbes" Vitro-Adamant Folding Lavatory, N. P. brass combination self-closing faucet for hot and cold water, N. P. brass waste coupling and turned rack Complete.....\$45.00 Weight: Net, 45 lbs.; Gross, 75 lbs. Dimensions: Height over all, 26 1/2 in.; width, 16 1/2 in.; depth open, 17 in.; depth closed, 7 in.



Plate S-3190

The "Moose" 12" Vitro-Adamant Corner Lavatory with N. P. Brass Pump and waste fittings and N. P. Full "S" trap.....\$24.50

Plate S-3196

The "Moose" Lavatory, same as Plate S-3190, except with faucet, instead of pump and without trap.....\$9.25



Plate S-151

The "Realya" Folding Lavatory, with tumbler rack; N. P. copper lining; N. P. Copper combined round basin and slab; N. P. copper soap and brush holder; N. P. brass double-acting pump with combination brass swing safety faucet. Made in Two Sizes, No. 1 No. 2

Quartered oak, polished finish.....\$37.50 \$42.50 Mahogany, polished finish.....39.00 44.50 Height.....19 1/2" 22" Width.....16 1/2" 18" Depth, open.....10 1/2" 12" Diameter of basin.....10" 12"



Plate S-3380

Small Vitro-Adamant 12" Flat Back Lavatory, with Nickel Plated Plug and Stopper, Chain and Stay, Nickel Plated Faucet, Trap, Standing Soap Dish, N. P. 750 Supply Pump. Complete as described.....\$18.35

Plate S-5202

Universal Polished Brass Rope Lead, 1/4".....\$0.55 3/8"......50 1/2"......75



Plate S-209

The "Martins" Vitro-Adamant Corner Lavatory, integral back, N. P. brass self-closing faucets, china name plate; hot and cold cast brass waste plug, stopper, chain and chain stay; N. P. half "S" cast brass trap and waste pipe.....\$27.00 Dimensions: Length of sides 16 1/4", height of back 6", diameter of basin 14" x 11 1/4".



Plate S-4280

All Brass Galley Pump, 2" Cylinder, reversible handle with shut-off cock. Polished.....\$12.50 N. P. all over.....14.00

Plate S-4254

Basin Pump with low down spout 1 1/2" cyl. inder. For use in sock hole of lavatory. Pol. Brass.....\$12.00 Nickel Plated, 14.00



Plate S-208

The "Medison" Vitro-Adamant Lavatory, with overlap slab and integral back; self-closing faucets and china index "Hot" and "Cold"; chain stay with chain and stopper; cast brass N. P. trap, and waste to bulkhead, with flanges.....\$26.00 Dimensions: Slab 20" x 18", basin 14" x 11", back 6" high.

Plate S-207

The "Majette" Vitro-Adamant Lavatory, same as Plate S-208, except with square front.....\$26.00

PLATE S-126

The "Glenora" Composition Flat way sea cock. Price 1/4 inch.....\$2.25 1/2".....3.00 3/4".....3.25 1".....3.50 1 1/4".....4.00 1 1/2".....4.50 2".....5.00

PLATE S-130

The "Allen" Brass Inlet Connection, Iron Pipe, 1/2 in.....\$1.75 1 in.....2.25 1 1/2 in.....3.75



Plate S-750A

New Style Double-Acting Brass Bilge Pump, with foot attachment and 5-ft. discharge and suction hose with brass strainer. No. 1-1 1/2" diam., 15" long.....\$5.00 No. 2-1 1/2" diam., 18" long.....\$6.00 No. 3-2" diam., 24" long.....\$14.00 The hose on section end makes this pump very efficient.

Plate S-709

New Pattern Improved All Brass Galley Pump, 1 1/4" cylinder with shut-off cock. Pol. Brass.....\$8.50 Pol. & N. P. 10.50 An efficient, easy-acting pump used in galley or laundry for supply to basin or sink.



"Sands" New "Victor" Bilge Pump

is 2 1/2" long, fitted with 3" rubber hose. Capacity 1 gallon every 4 strokes.

Plate S-4300

As described.....\$4.50

Plate S-4301

Same as above, but also fitted with adjustable foot rest.....\$6.50



Plate S-750

Double Acting Brass Bilge Pump, 10 inches long under spout and fitted with 5 feet of rubber hose. No. 1-1 1/2" diam., \$3.00 No. 2-1 1/2" diam., 4.50 No. 3-1 1/2" diam., 24" long, with foot rest, \$5.50 A safe, reliable hand bilge pump is a necessity on any small boat.

PLATE S-128

The "Helena" Composition Outboard Connection with S&P valve and coupling. 1/4".....\$1.00 1 1/4".....1.50 1 1/2".....2.00 2".....2.50 2 1/2".....3.00 3".....3.50 4".....4.50 5".....5.50

Plate S-5200

Neptune Motor Boat Bow Lantern Bracket; hinges permit bracket to lie on deck when not in use. Polished Brass.....\$0.75

Plate 1303-B

Cast Bronze Round Raised Strainer, 2 1/2".....\$0.35 3"......50 4"......75 5".....1.00 6".....1.50 7".....2.25 8".....3.00

Plate S-5202

Universal Polished Brass Rope Lead, 1/4".....\$0.35 3/8"......50 1/2"......75 3/4".....1.00 1".....1.50 1 1/4".....2.25 1 1/2".....3.00

PLATE S-131

The "Carlton" Brass Outlet Connection, Iron Pipe, 1/4 in.....\$1.75 1/2 in.....2.25 1 in.....3.75

"SANDS" PORT LIGHTS AND DECK PLATES



PLATE S-1000		PLATE S-1001		PLATE S-1002		PLATE S-1003		PLATE S-4705		PLATE S-4770	
Octagon Port Light, Glass Opening		Round Port Light		Round Port Light with Heavy Frame		Port Light with Storm Shutter		Port Light with Sieve		Port Light with Screens	
3"	\$2.75	3"	\$3.25	3"	\$4.25	10"	\$14.00	12"	\$20.00	12"	\$20.00
4"	2.75	4"	3.25	4"	4.40	12"	17.50	14"	22.75	14"	23.00
5"	2.75	5"	3.25	5"	4.40	14"	19.50	16"	26.00	16"	26.00
6"	2.75	6"	3.25	6"	4.40	16"	21.50	18"	28.50	18"	28.50
8"	4.25	8"	5.05	8"	6.25	20"	24.50	20"	32.00	20"	32.00
10"	5.50	10"	7.00	10"	9.50	24"	27.50	24"	35.50	24"	35.50

STYLES S-1000 MADE IN SLEEVES 1" TO 4" LONG. ABOVE PRICES COVER SLEEVES UP TO 1 1/2" IN LENGTH; OTHER LENGTHS OF SLEEVES AT SLIGHT ADVANCE IN PRICE. ALL SIZES 7" AND UNDER HAVE ONE CLAMPING SCREW. ALL SIZES 8" AND LARGER HAVE TWO OR MORE CLAMPING SCREWS.

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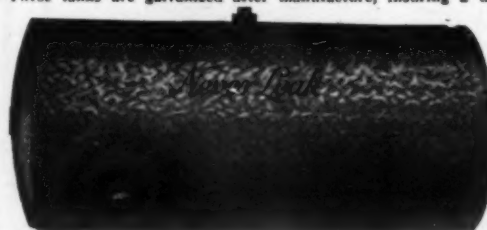
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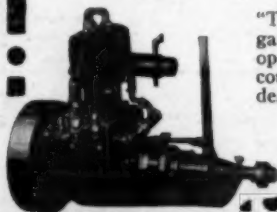
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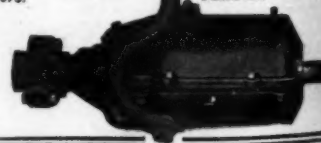
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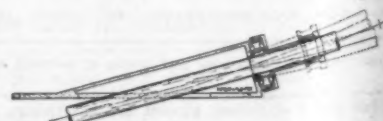
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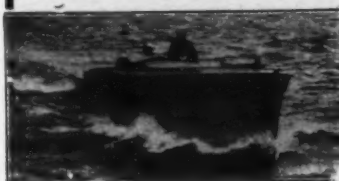
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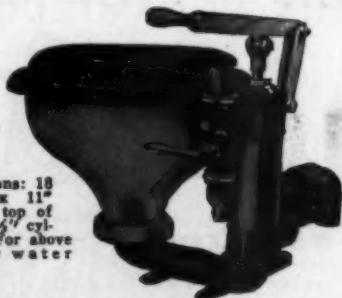
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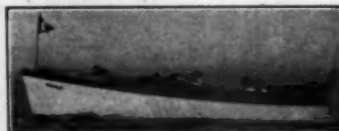
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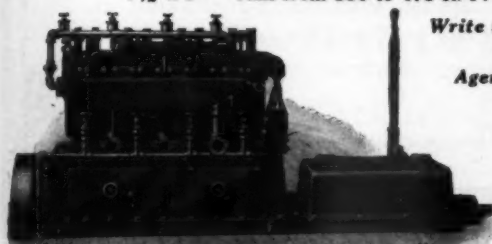
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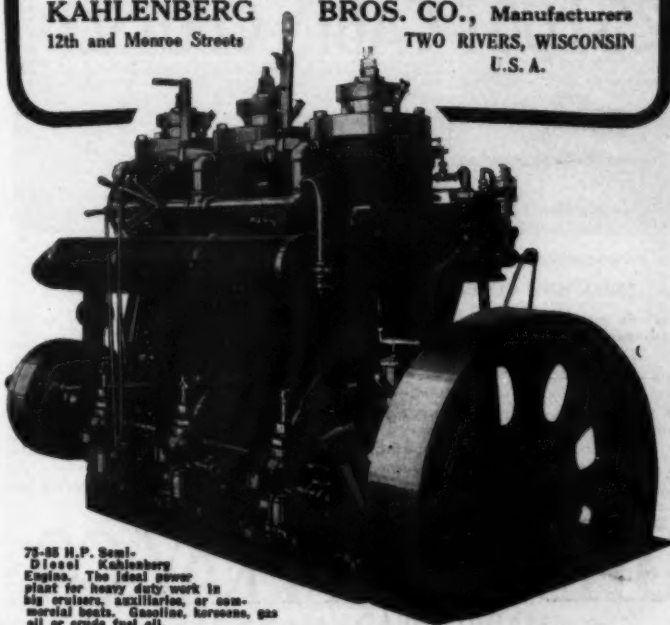
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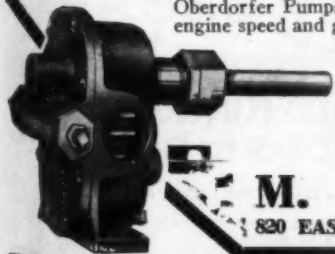
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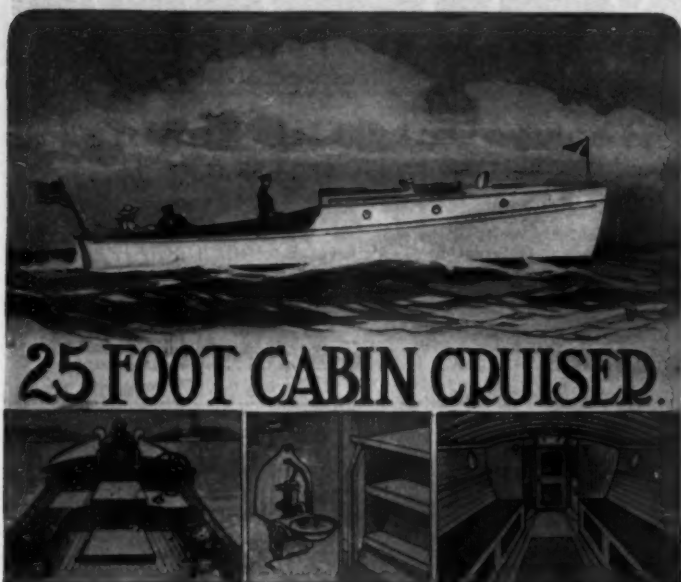
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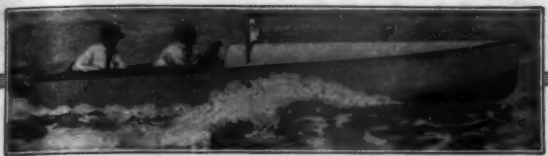
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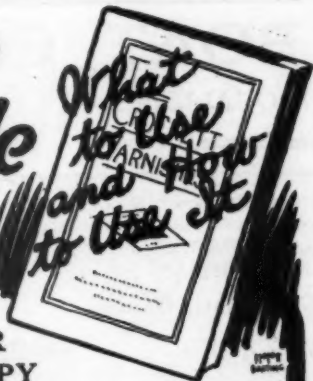
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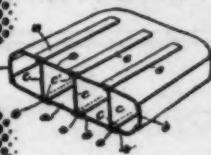
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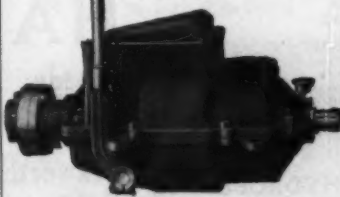
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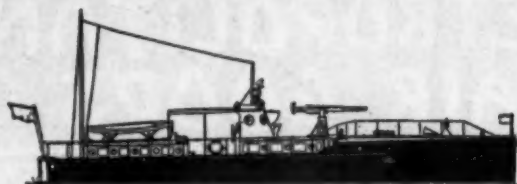
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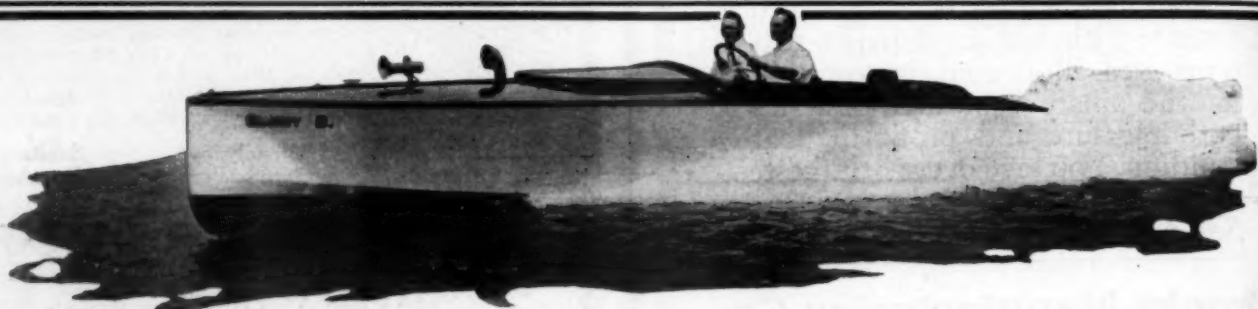
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SPECIALIZE 4 QUALITIES

Plain, Regular, Semi-Deluxe, Deluxe



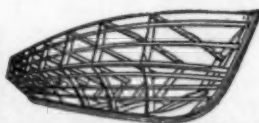
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We build any kind of Cruisers, House Boats, Work Boats, Fast Passenger Boats, Runabouts, Speed Boats, Shoal Boats, Row Boats. Also furnish same SEMI-ERECTED, KNOCKED-DOWN and PLANKED HULLS.

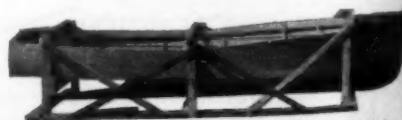
311 Main St., Cincinnati, Ohio



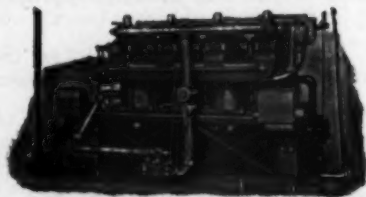
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With 4-Ft. Pole, \$6.95
Without Pole, \$5.95

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Either outfit is made to operate on six dry cells, storage battery or magneto.

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No. 1—8"x4 1/2" No. 2—8"x5 1/4"
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Entirely New,
Plane Finish,
Extra Strong
Spar, Coated,
Guaranteed.
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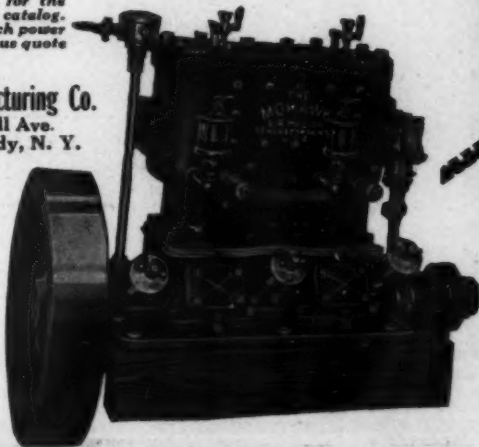
We challenge any maker of any type engine to produce a machine which will match the Mohawk in all around satisfaction,—power for power, dollar for dollar, and quality for quality. We use double ignition, auxiliary air intake, extra large valve ports, four rings on each piston and many other superior features. Racing, medium duty and extra heavy duty types.

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Kerosene-Gasoline
1 Cylinder, 6 H.P.
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Single-Post AUTO STEERER

A lower priced Auto Steerer. Similar in construction to other Steerers of the same type, but bears that skillful workmanship always characteristic of the "WC" Line. Model M is equipped with Spark and Throttle Controls, wooden drum, 3 spoke spider, laminated maple rim stained imitation mahogany. Well and accurately made. Specially recommended for small boats.

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"Sea Craft Suggestions and Supplies"—enlarged edition—216 pages. Full of useful ideas. Tells how to box the Compass and what is proper Ground Tackle; gives hints on Steering Gear, etc. Mailed on receipt of 20c.



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An increase of speed of from ONE TO THREE MILES AN HOUR is guaranteed by the use of the

Your boat may be of fine driving form, and your motor a good and efficient machine; but if you haven't the proper propeller you won't get the speed you ought to get. Before you replace your motor or sell your boat, give it a fair chance with a B. & B. propeller. The surest way to secure maximum speed from any boat is to fit it with a genuine B. & B. wheel in the first place. Technically correct and manufactured by a firm whose market has for years been international. Look for our name stamped on the hub of every genuine B. & B. Propeller.

Because of the increase in the demand for our propellers, we shall henceforth devote our attention exclusively to the production of solid blade propellers. Send for new catalogue.

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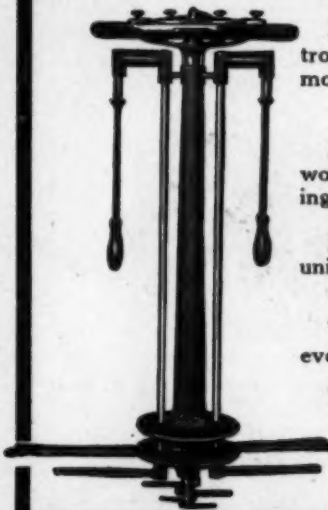
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Twin Unit Control Perfection in Express Cruiser Control



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25 other styles for cruisers, work boats, runabouts and racing boats.

Made in single and double units with or without Binnacle.

We manufacture a wheel for every type of boat.

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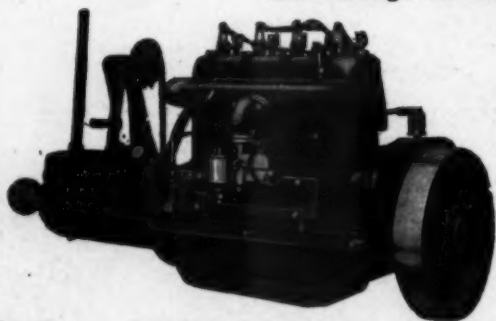
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PROVEN GOODNESS

4 Cylinder 4 Cycle
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Speed Range
300 to 1800 R. P. M.

Motor Fast enough for speeding
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THAT GOOD GULF GASOLINE and SUPREME AUTO OIL

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Built on different lines. Has two-cylinder principle which does away with vibration.

It does not shake the boat.

The Great
**2-CYLINDER
KOBAN
ROWBOAT MOTOR**

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Built-in
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Does Not Shake the Boat

Both cylinders firing at the same time is cause of the absence of vibration. Saves the boat.

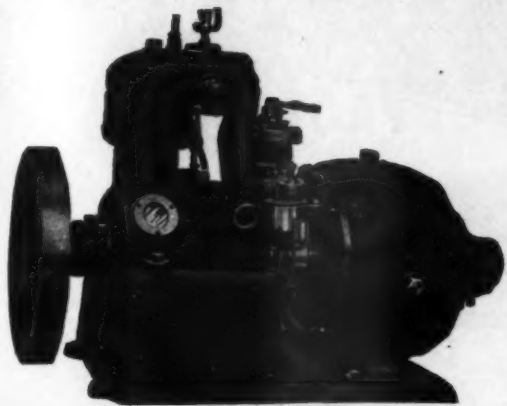
Fully explained in new 24-page catalog sent free upon request.

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Yacht Lighting Outfit



A HIGHLY developed direct-connected Generator Set. Used on some of the finest yachts built during the past few seasons. Nothing like it in existence, for those wishing a compact and reliable plant, suitable for yachts from 40 to 80 feet, operating interior, running lights, electric fans, searchlights, etc. The air compressor may be used for whistle, air pressure or water tanks, or supplying air pressure for starting engine. Used by U. S. Government on scout cruisers. Send for Bulletin 9000.

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Manzel Pumps may be run at high or low speed—in either direction—and can be adjusted (each feed independently) to supply the exact amount of oil your engine needs.

They will handle heavy or light oil against any pressure.



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YOU WILL, OF COURSE,
WANT A

Racine Wis
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MOTOR BOAT

Racine Wis boats are backed by 21 years of boat building skill and experience.

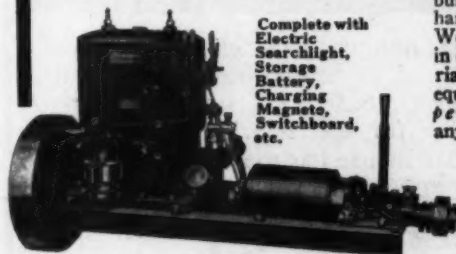
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Complete with
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A beautiful little engine painted a dark maroon with piano finish, and built throughout to equal the most expensive out-board motors made. The up-to-date ideas we have incorporated in this model will surprise you when we tell you that the price is only.....

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PRICES:

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2 H.P. Single Cyl.....	50
4 H.P. Single Cyl.....	75
7 H.P. Single Cyl.....	100
10 H.P. Double Cyl.....	150
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They can't stand a wetting. Why risk the failure of your ignition, when Rajah Plugs are absolutely waterproof—unaffected by mist or spray? They are oil-proof, too. The moment you install Rajah Waterproof Plugs, you will notice a big improvement in the running of your engine. They are especially efficient Plugs for portable motors.

Furnished in all the standard sizes with Rajah Regular Terminal fitting any cable. Rajah Ferrule Terminals, making a neater connection, will be furnished if a sample of cable is included with the order.

Rajah Waterproof Plug, \$1.50 Postpaid
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Built for Semi- and High Speeds

Whether for semi-speed or high speed work, greater effectiveness can be realized by using a propeller of proper design—not the ordinary types but one that is the result of scientific study and tests—a "Shaw."


The "Shaw" Centripetal Propeller is so designed as to eliminate any centrifugal action of the water particles as they pass through the zone of the propeller's activity—a straight, powerful thrust in the direction of travel results—no counteracting resistance.

The great efficiency of the Shaw can be applied to your boat—small or large. There is a size for every particular requirement. The "Shaw" merits your careful investigation and our circulars will interest you.

Write today for full information and prices.

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THAT'S what happens to a "cheap" boat fitting—usually at the most inconvenient and annoying moment. Side-track such vexation! Ask your dealer for  Marine Hardware. For seventy years its use has meant Service and Satisfaction.

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"SKENE" CHOCK

Cast in one piece—no hinges or pins to break, lose overboard or cause trouble at a critical moment. The rope cannot jump this Chock. When riding to anchor in a choppy sea, or when towing a tender they are invaluable.

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EST. 1847

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Thousands of gears we have built during the past ten years are quietly advertising the quality of Standard Gears.

Built in four sizes, for transmitting from 1 H.P. per 100 R.P.M. to 225 H.P. for 1500 R.P.M. Iron or aluminum case.

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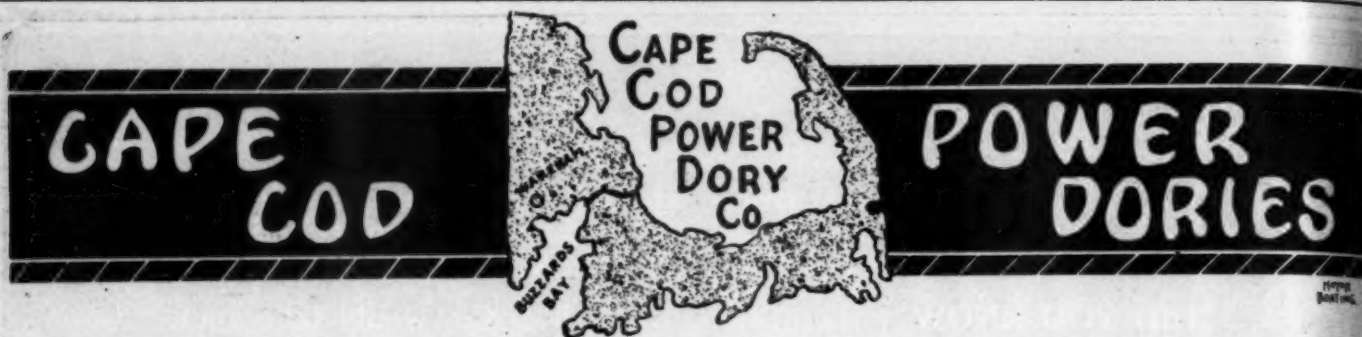
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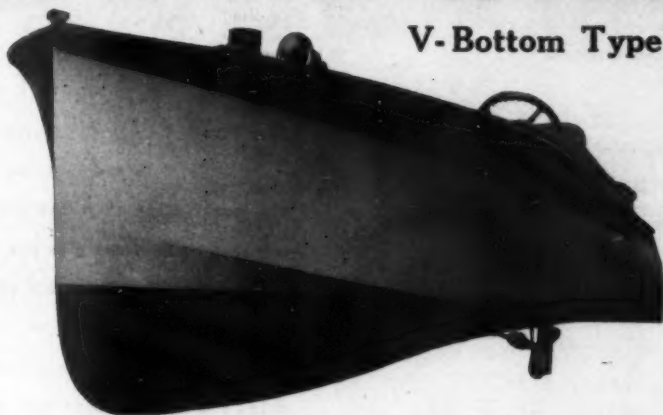
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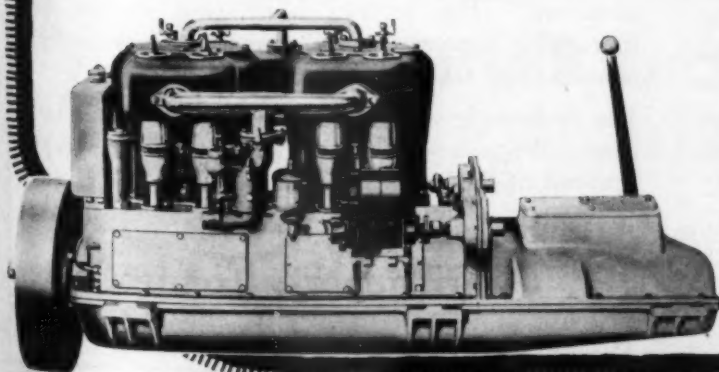
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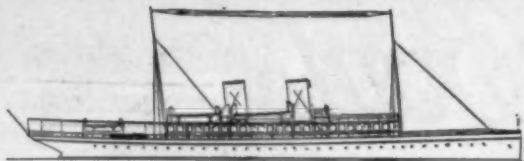
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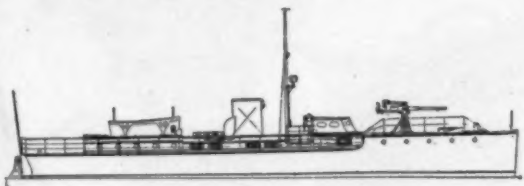
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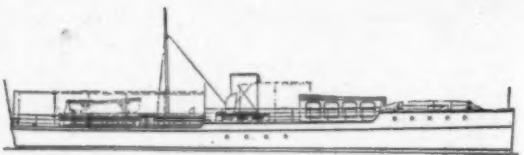




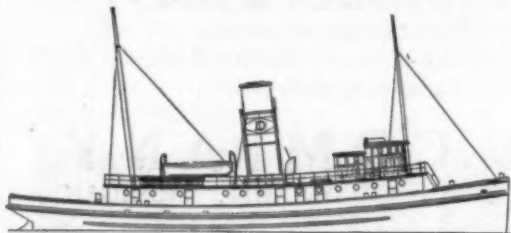
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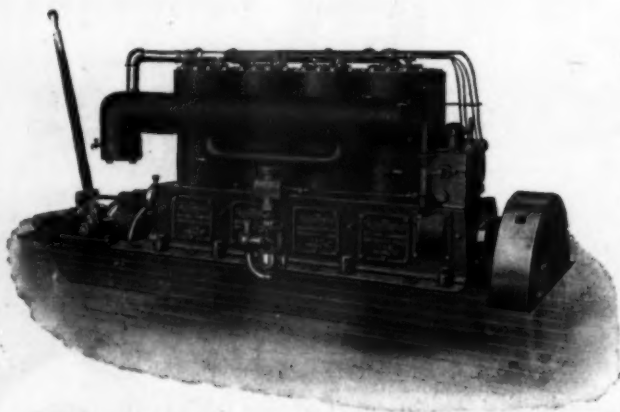
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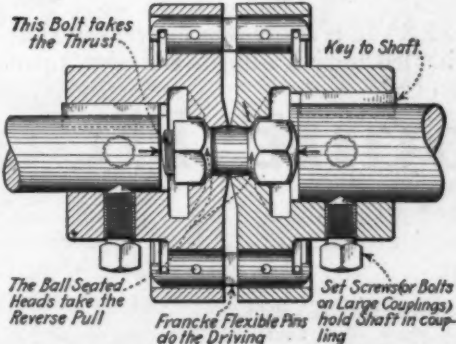
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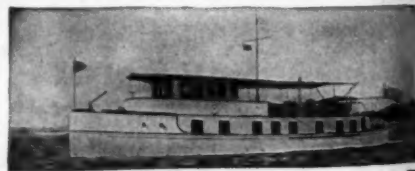
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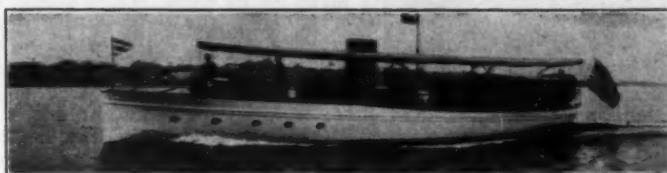
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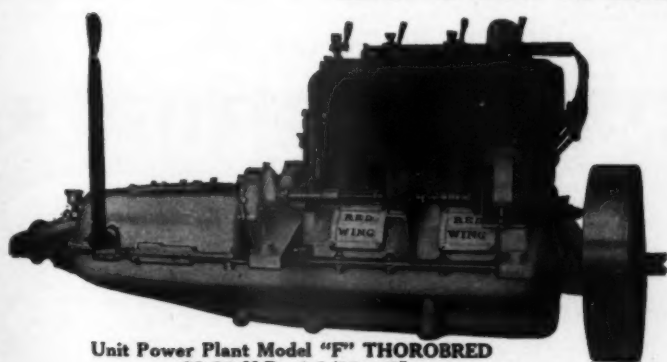
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JEFFERY'S MARINE GLUE

In some places economy is all right, but when you come to Marine Glue the difference in cost between the ordinary and the best is so little that you can't afford to take the risk of having to do the job over again for the sake of saving a little on the material.

It pays to use Jeffery's in the first place, every time. Jeffery's is universally conceded to be the best and most reliable marine glue. Jeffery's Glues are specified by the best designers and used by the best builders. A little investigation will show you why.

No. 1—Extra Quality for Deck and Hull Seams of Yachts and Motor Boats. Black, white, yellow or mahogany color. Give black the preference; it is more elastic and satisfactory in every way.

No. 7—Soft Quality for Waterproofing Canvas, for Covering Decks, Tops of Cabins, Canvas Boats, Canoes and Flying Boats. Black, white or yellow. With a coat of paint once a year it will last as long as the boat.

Waterproof Liquid Glue is used for the same purposes as No. 7, Soft Quality. Ready for use and requires no heating; simply open the can and paint it on. Especially recommended in combination with linen between the diagonal of flying boats. Will also attach canvas, cork, felt, rubber, leather, and linoleum to iron, steel, or wood.

Special Marine Canoe Glue. Best Filler for Canvas. Black, White and Yellow. Every canoeist should carry one of our 25c emergency cans. Sent by mail on receipt of 30 cents in stamps.

FOR SHIP'S DECK USE No. 2 First Quality Ship Glue, No. 3 Special Navy Glue. Put up in 1, 2, 3 and 5 lb. cans; also 14, 28, 56, 112 lb. boxes.

Sold by all Boat and Canoe Supply Houses, Hardware and Sporting Goods Dealers. Write to-day for booklet "What to Use and How to Use It." It contains a fund of valuable information that every practical boat owner and builder should know.

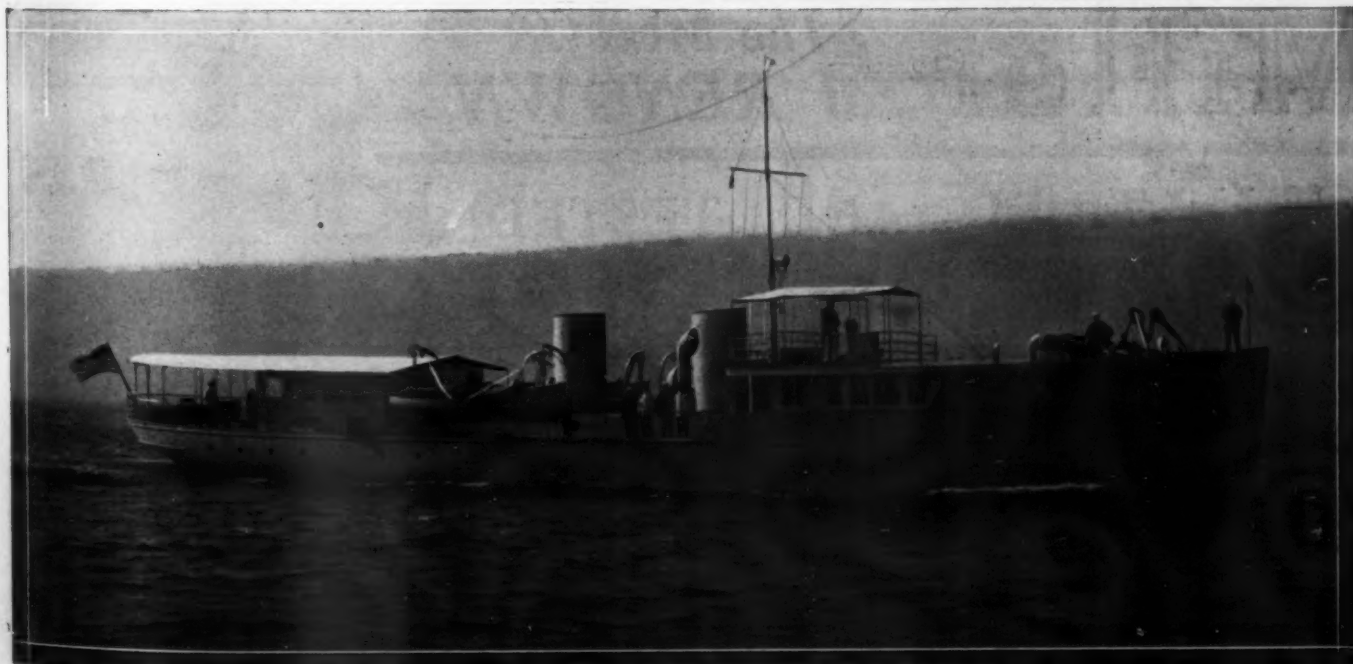
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EQUIP your cruiser with de Forest Oscillation and Audion Wireless Apparatus. The best made and most sensitive.

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SABALO—140' x 20' x 7', Largest Triple-screw Motor Yacht afloat. Built for Mr. W. Earl Dodge, New York Yacht Club. Designed by Tams, Lemoine & Crane.

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Quality in Boat Building

For fifty years we have confined our efforts to building motor boats and yachts of the highest grade, and have refused to build any other kind.

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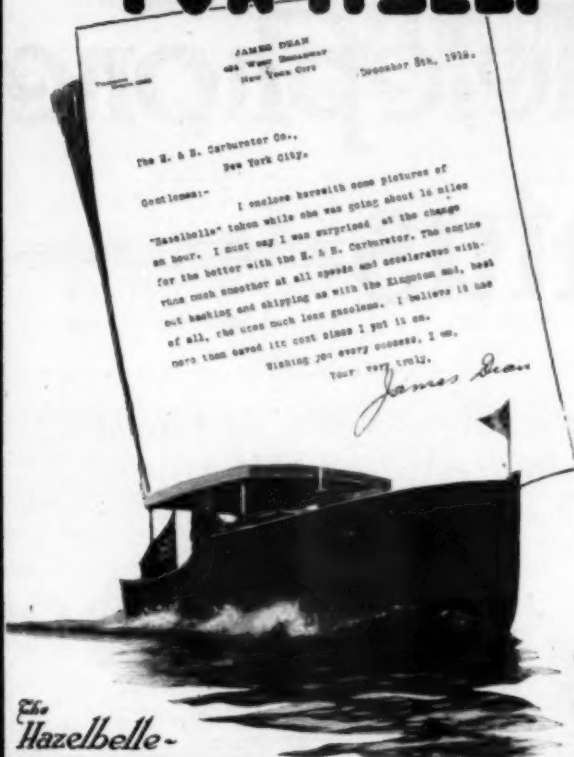
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H&N. CARBURETOR PAYS FOR ITSELF IN A SHORT TIME



Your boat has a lot more in her than you realize. She will cheerfully do her part, providing you do yours. And your part—your next move is to equip the power plant on your craft with an



H.&N. Automatic Carburetor

This done, you'll bless the man who wrote this message. For a King's ransom wouldn't entice you to swap this carburetor for any other. You will have at your instant command those things that make motor boating the most satisfying sport—guaranteed extra power, quick acceleration, more flexibility, all at a saving in gasoline.

We absolutely guarantee these benefits. Our challenge to the world to meet the efficiency and economy of this carburetor has not been met. Recognized supremacy of The H. & N. is the reason. Write for booklet, "How to Save Fuel." It will open your eyes to the new possibilities in your boat. Merely ask for

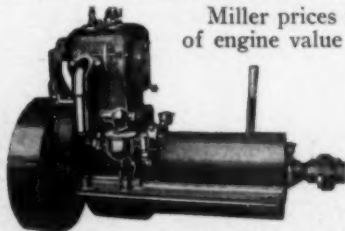
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THE H&N. CARBURETOR CO.
1675 Broadway NEW YORK

Miller The MOTOR of RENOWN

TIME-TRIED AND TESTED

IF you want a medium duty or heavy duty power plant that is backed up by many years of successful service, get a Miller Motor. There are more expensive engines and more widely advertised engines, but there isn't a better built one.



Miller prices represent 100 cents' worth of engine value to the dollar. When you know the reliable quality of Miller Motors, the prices will speak for themselves.

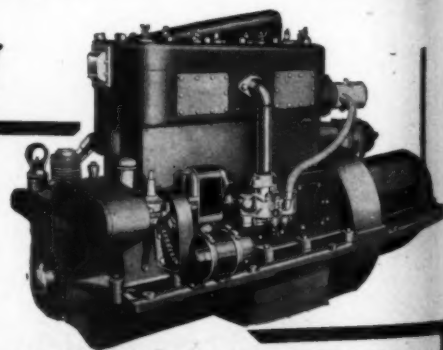
If you want 4 or 6 H.P., you will find the one-cylinder Miller F-1 and I-1 models hard to beat. They are high grade four-cycle engines. We build three two-cylinder vertical models, from 8 to 15 H.P., also five double opposed motors.

Miller Four-Cylinder Motors are built in eight models, from 10 to 75 H.P. They are the very best in design, materials, workmanship and equipment. We use the Bosch Duplex Magneto and Bosch-Rushmore starting and lighting system.

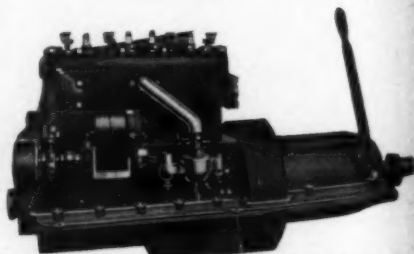
Miller Motors are designed to operate at 350 to 1000 R.P.M., depending upon the class of duty. Furnished for burning kerosene, distillate or other low grade fuels, if so specified in order.

The Miller Portable Motor

Positive reversible weedless propeller, operated by the steering lever. The movable blades are adjustable to any pitch, thus automatically providing for a variable speed in either direction. 2½ H.P. Bore 2¼ in. Stroke 2½ in. Ignition by Battery or Bosch Dixie Magneto.



40-50 H.P. Four-Cylinder Miller Model S Motor with Bosch Electric Lighting and Starting System Installed.



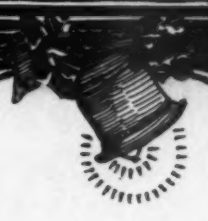
12-20 H.P. Four-Cylinder Miller Model E Motor.

See Miller Motors at the Boat Show

Write today for latest illustrated catalog which describes the entire line of Miller Motors.

MILLER GAS AND VACUUM ENGINE CO. 2329-2331 North Talman Avenue CHICAGO - - - U. S. A.

Agents: Consolidated Gas & Gasoline Engine Co., 202 Fulton St., New York City
Sole Agents for Australia: A. J. Dadson & Co., 9 Hamilton St., Sydney, N. S. W.



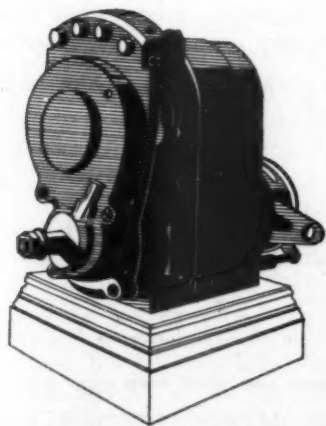
Happy 1917 to Berling-users

A Happy New Year to you!—
especially if you have a Berling
Magneto.

The makers of the Berling Mag-
neto thank you for the Berling's
great success. During 1916 the
Berling has gone from "optional"
to "standard"—for the Berling has
proved its merit in record-breaking
—and in everyday duty.

If you want a Berling, simply ask
for it on your next engine. The
Berling is used on the Sterling, Van
Blerck, Universal and Wisconsin.
And on other good engines, it can
be had for the asking.

Ask for it



Berling Magneto

Worth More

Does More

Ericsson Manufacturing Co.
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(Patented)



Dependability—isn't that the thing that
you want, above all else, in your boat and
engine? Go to the root of this matter,
and you'll find that dependability is first
of all a question of securing dependable
ignition. And dependable ignition
means magneto ignition, supplied by a
high-grade magneto. Here is a fact for
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"NORMA" Bearings are standard in the
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have themselves come to be a dis-
tinctive mark of that magneto quality
which assures dependable ignition.

*Be SURE—See That YOUR
Magnetos Are "NORMA"-Equipped*



THE NORMA COMPANY OF AMERICA

1790 BROADWAY

NEW YORK

BALL, ROLLER, THRUST AND COMBINATION BEARINGS

Will Drive Your Boat

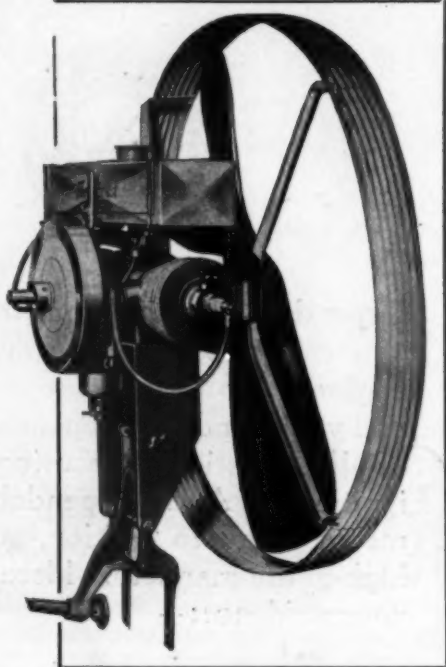
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The All Year 'Round Outboard Motor

**MORE
SPEED!**

**LESS
NOISE!**

**LESS
FUEL!**



MORE SPEED

The 1917 AEROTHRUST is equipped with a new type propeller, 32 inches in diameter, which has a three-foot pitch. This means increased speed of the boat with less wear and tear on the engine.

LESS NOISE

The mufflers that are now attached to the motor are a great improvement over the old type and the noise is muffled to a dull whir.

LESS FUEL

The increased thrust of the propeller reduces the speed of the engine from 2000 to 1600 R.P.M., thereby saving fuel.

ORDER NOW

The trend of the metal market is continually upwards and it will pay you well to send your order in now!

PRICE

3 H.P., \$90.00—5 H.P., \$135.00
3 H.P. with Steering Attachment, \$100.00
Dealers: Send for Agency Contract

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Supplies the latest information available
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To acquaint Motor Boat readers with the new and wonderfully interesting aeronautical movement, the management of AERIAL AGE have decided to offer a Six Months' Introductory Offer for One Dollar.

Attach ONE DOLLAR to your card and send it to us at our risk.

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280 Madison Avenue, New York City

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What*

Propeller Efficiency

Means

How Far Does Your Boat Travel

with each revolution of your propeller. That is the important point. If your propeller turns 1400 revolutions per minute and you can drive your boat one-quarter of an inch farther with each revolution you will

Increase Your Speed One-Third of a Mile Per Hour



If Your Boat Is Not COLUMBIAN DRIVEN

we can increase your speed if anyone can, and we can sometimes beat a Colombian with a Colombian. One thing we do know, that in competition with another wheel of the same diameter, pitch and blade area on the same boat, a

Columbian Always Wins

We have proved that many times, and that is all any propeller can do. With

**ELEVEN YEARS OF SCIENTIFIC STUDY
ELEVEN YEARS OF CAREFUL DEVELOPMENT
ELEVEN YEARS OF PRACTICAL EXPERIENCE**

Columbian Propellers embody all of the niceties of design and care in workmanship that are so necessary for greatest efficiency. Furthermore, with our eleven years of practical experience in selecting the most suitable propellers for all types of boats, we are better equipped to aid you in selecting your propeller than any other concern

BAR NONE

Send for our Catalog, "Propellers in a Nut Shell," and when you buy a propeller, look for the Trade Mark. Don't let anybody "put one over." Colombian Propellers are for sale at all Dealers.

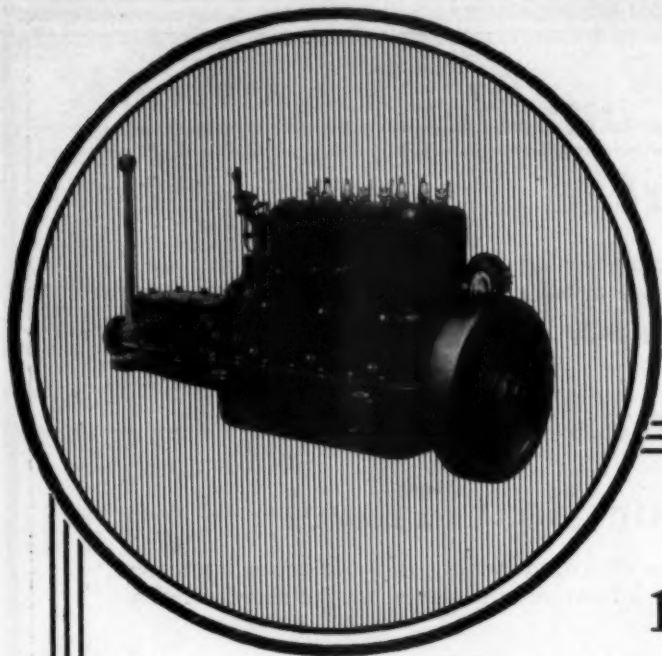


See our exhibit at the New York Motor Boat Show

COLUMBIAN BRASS FOUNDRY

218 North Main Street Freeport, Long Island, New York

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GR

Motors of

The Model F

12-15 H.P. \$225.00 and up
According to Equipment

The man who is sick of the game, tired out after a long series of motor troubles, costly repairs and vexatious delays, will be quickly and completely won back by a ride behind a Gray F. The show of power manifested by this engine, its velvety smooth operation, its quietness, its utter responsiveness, —these features make an instant appeal and create a profound impression. A better acquaintance with this engine leads to a realization of the worth of the pressure-feed lubricating system (through hollow crankshaft), of the strength of the 2 1/8" crankshaft—and the confidence that strength inspires —of the value of the large interchangeable bearings, and of the general excellence of this high-grade, popular priced motor.

But, most of all, it is performance that counts. Listen:

For the Cruiser

Brewerton, N. Y., July 12, 1916.

Gray Motor Co.

Gentlemen:—Regarding the Model F 12-15 H.P. Motor, would say that we have installed same for Mr. Douglass and have given it a thorough trial. The motor is surely more than you claim for it, as it is positively the smoothest running proposition we have ever seen. The engine is installed in a 32' x 7' cruiser of heavy construction, but this little engine gives the boat a speed of 8 miles per hour, which we consider a mighty good showing, owing to the build and lines of the boat.

Yours very truly,

(Signed) T. M. Milton & Son, Boat Builders.

For the Runabout

Quarantine Station, Biloxi, Miss., October 8, 1916.

Gray Motor Co.

Gentlemen:—The 12-15 H.P. Model F which I received from you in August has been very satisfactory and I have not had a moment's trouble with it. I have used the engine every day since I received it and it has never missed an explosion. The engine has proved itself to be very powerful and always keeps the boat steady. She makes from 18 to 20 M.P.H. It is installed in an 18-foot modified V-bottom boat.

Yours very truly,

(Signed) T. L. Olesen.

For the Yacht Tender

Morris Heights, New York, November 1, 1916.

Gray Motor Co.

Gentlemen:—We have had the little 16' Speedway yacht tender equipped with your Model F running and we are more than pleased with the result. We have for the last few years been looking for a motor suitable for this type of boat which would be as high class and reliable as the boat, but up to the time of installing the Gray we have not met with entire success.

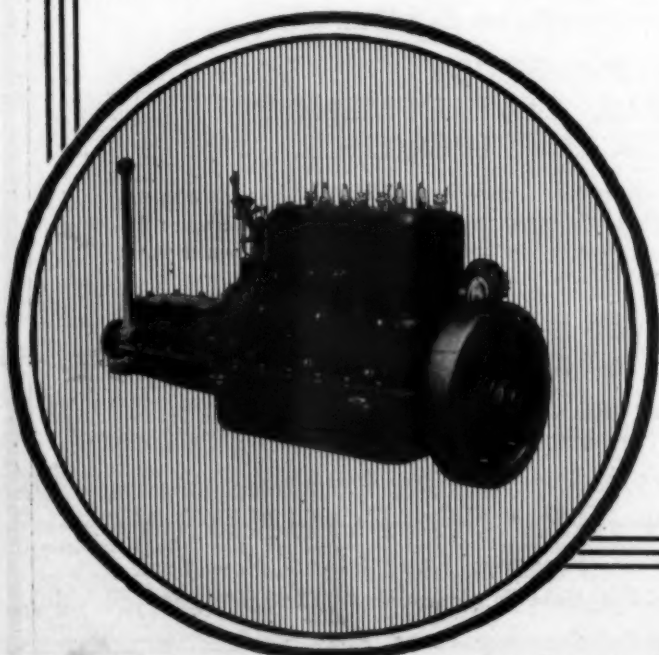
Yours truly,

Gas Engine & Power Co. and C. L. Seabury, Cons.

N. B.—THIS STOCK TENDER WITH THE MODEL F INSTALLED MAY BE SEEN AT THE NEW YORK SHOW, AT THE EXHIBIT OF THE GRAY MOTOR COMPANY. DON'T MISS IT.

The Two Cycle-Grays for 1917

The permanence of the two-cycle marine motor is certain. It will always occupy a definite place and perform a definite mission. The simplicity, light weight and low cost of the small two-cycle engine makes it the ideal motor for the beginner and for the owner who does not want the complications of the four-cycle engine. We sold more two-cycle engines in 1916 than any year in our history. The 1917 Two-Cycle Grays are ready. They are made in four sizes as follows: 3 H.P. single cylinder; 5 1/2 H.P. single cylinder; 6 H.P. double cylinder; 11 H.P. double cylinder. Send for our two-cycle catalog.

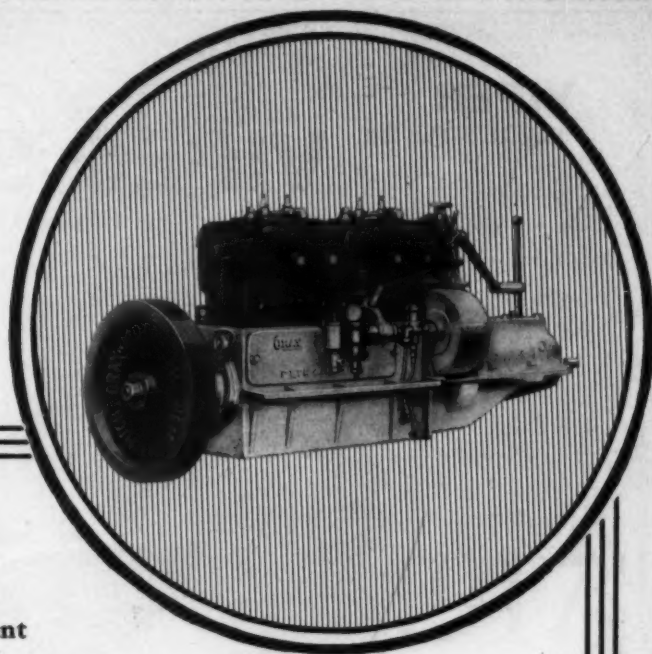


GRAY MOTOR CO.

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AY

Accomplishment



The Model D

20-24 H.P. \$225.00 and up
According to Equipment

Vacation pleasures, business success, racing trophies depend upon the efficiency of your motor. Your life itself may one day hang upon that motor's reliability. Whether you use your boat for cruising, racing, fishing, duck hunting, freighting, towing, or just plain motor boating, you want a motor that is built right and that runs right. In other words, you want a Gray. The Model D 20-24 H.P. has an abundance of power (in excess of its rating); is exceedingly simple, clean, and quiet. The high intrinsic value is proved by its great popularity. Its price is remarkably low—and the quality is remarkably high.

It is a motor of proven worth. Read:

For the Work Boat

Bernard, Maine, July 12, 1916.

Gray Motor Co.

Gentlemen:—My two Model D 20-24 H. P. Gray motors are installed in a 47' x 12' 1" boat, which is very heavy and bulky and which I use for carrying lobsters from Nova Scotia to Maine and Boston, Mass. On one trip I ran both engines at full speed for 36 hours without a stop except one-half hour while taking on gasoline. One engine alone will drive her at 6 knots, and the pair at over 8. A number of the fishermen here have ordered duplicates of this motor.

Very truly yours,

(Signed) Willis B. Watson.

For the Speed Boat

Dr. W. E. Sanborn, of Detroit, the well-known pilot of the Miss Detroit, has placed a Gray Model D 20-24 H. P. in a modified V-bottom hull 21' long, designed by John L. Hacker and built by the Mayea Boat Works. He obtains 20 miles per hour with the outfit, which was not built for speed work.

For the Practical Open Boat

Chattanooga, Tenn., July 19, 1916.

Gray Motor Co.

Gentlemen:—I use my boat "Vang," which is 24' x 6' and is powered with one of your Model D 20-24 H. P. motors, 24 hours a day. The boat makes 12 miles per hour and the engine is in use from twelve to fourteen hours seven days a week. The little motor has given absolutely perfect service and has never failed once. It is doing the work of a heavy duty engine, and doing it without any more attention than is given the highest priced engines on the market.

Very truly yours,

Carl L. Mourfield, Mgr.
Chattanooga Boat Factory.

**DON'T FAIL TO SEE THIS MOTOR
AT THE NEW YORK SHOW**

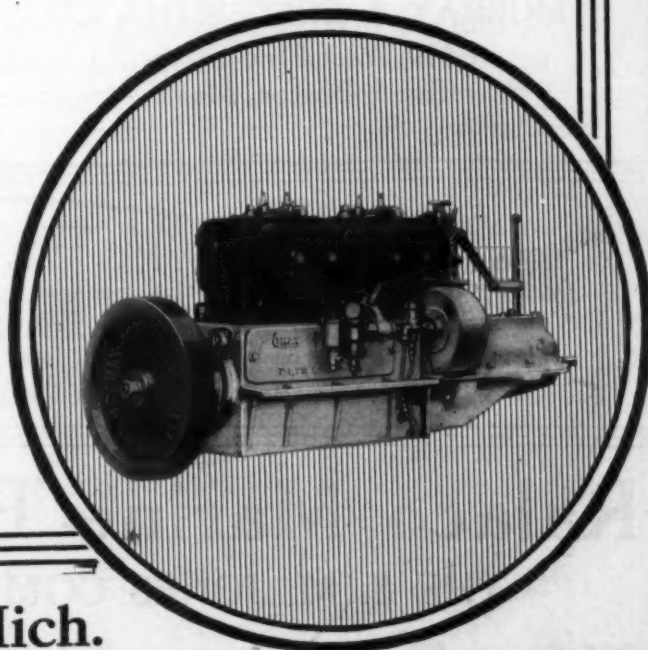
The Gray Creed

We believe in the quality motor at moderate price.

We believe in quantity production by modern methods which alone makes such a motor possible.

We believe in the satisfied customer—first, last, and always.

The Complete 1917 Catalog is Out. It will pay you to send for it. It contains a motor for every size and type of boat, two and four cycle, 3 to 90 H.P. It contains the motor for you. Send for it and you'll send for a 1917 Gray soon afterwards. It means true motor contentment for many years to come.



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VIPER

Reg. U. S. Pat. Off.

SEA SLED

Reg. U. S. Pat. Off.

VIPER SEA SLED

HICKMAN PATENTS

**Latest Type Sea Sleds for Aviation Division, United States Army**

Able, seaworthy boats, designed for rescue work in open water.

Length, 28 feet. Weight on trials, 7800 pounds.

Two six-cylinder 6" x 6" engines

GUARANTEED SPEED, 35 STATUTE MILES PER HOUR**Speed Shown on Official Trials, 43.54 Statute Miles Per Hour**

Run from Gloucester to Boston, 28 miles, 18 miles of which is open water, in a stiff chop. Army officials aboard. Revolutions, 1200. Time, 48 minutes.

INCOMPARABLY THE FINEST SEA BOATS IN THE WORLD**MURRAY & TREGURTHA CO.**340 West First Street
South Boston, Mass.**THE VIPER CO., Ltd.**Pictou, Nova Scotia
Canada

CUT DOWN THE HIGH COST OF SPORT
You can use the

"AIRDRIIVE"

on large boats, small launches, ice boats and aero sleds. Write

THE KEMP MACHINE WORKS, 1217 S. Franklin St., Muncie, Indiana**Ralaco Marine Engines****THE S. M. JONES COMPANY**

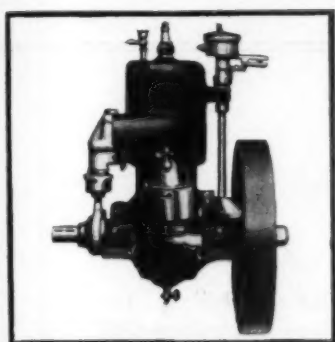
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*Quiet Running**Sturdy Construction**Economical in Operation**1-10 of a Gallon of Gasoline per
H. P. Hour**10 to 75 Horse Power**2 to 6 Cylinders*

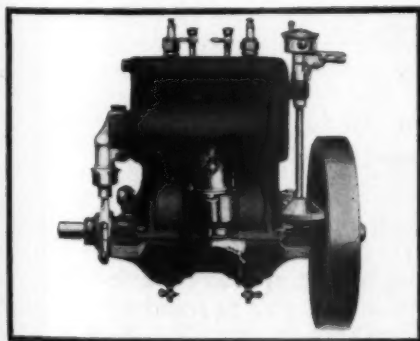
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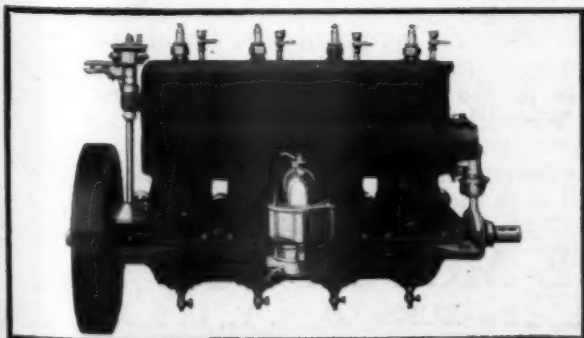
Roberts Motor For 1917



4 H. P. Bore $3\frac{1}{2}$ ". Stroke 4".
Net Price \$68.00.



8 H. P. Bore $3\frac{1}{2}$ ". Stroke 4".
Net Price \$120.00.



16 H. P. Bore $3\frac{1}{2}$ ". Stroke 4".
Net Price \$240.00.

To The Boatbuilders of America!

The Roberts Motor Mfg. Company have definitely discontinued their previous policy of handling their engines through dealers.

On and after February 1st, every established and competent Boatbuilder will be a dealer for Roberts Motors.

A rigid one-price policy will be adhered to by the Roberts Motor Mfg. Company and the only discount allowed from advertised prices will be that paid to legitimate Boatbuilders on orders actually placed by them with the factory.

Under no consideration will the Roberts Motor Mfg. Company quote other than list price to a consumer.

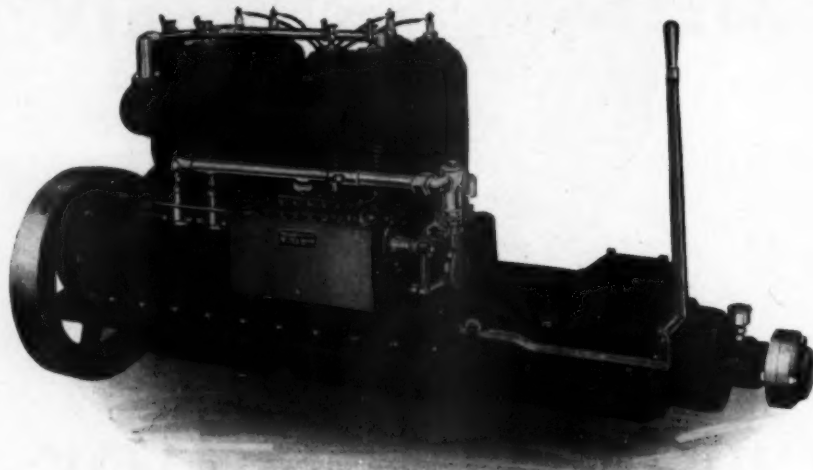
The Roberts Line of Motors for 1917 is of live interest to all Boatbuilders. It has been revived and brought up-to-date. The factory is splendidly equipped with a large stock of material on hand. Prompt shipment will be made upon receipt of all orders.

The New Roberts Proposition is ready for mailing. Write for it to-day because it means profit for you as a Boatbuilder and a method whereby you can increase your business and protect your interests.

Roberts Motor Mfg. Co.

1100 Roberts Building

SANDUSKY, : : : OHIO.



GASOLINE—KEROSENE

Peerless

MARINE MOTORS

Announcement

We are pleased to announce the new 5 to 8 H.P. Single Cylinder and the 10 to 12 H.P. Two Cylinder Models. These engines are designed to meet the hardest kind of service such as is encountered in Fishing and Work Boats. The design throughout is extremely simple, strong and accessible. They are in every sense of the word a work engine. In accordance with the Peerless Policy we are offering these engines at a popular price.

1917 PRICES

Fishing and Work Engines

1-cyl. 5 to 6 H. P. Complete except Reverse Gear	\$165.00
(Reverse Gear on extension base \$35.00 extra.)	
2-cyl. 10 to 12 H. P. Complete except Reverse Gear	\$250.00
(Reverse Gear on extension base \$40.00 extra.)	
2-cyl. 20 to 24 H. P. Complete with Reverse Gear	\$425.00
4-cyl. 40 to 50 H. P. Complete with Reverse Gear	\$675.00
MEDIUM DUTY AND SPEED ENGINES	
2-cyl. 8 to 10 H. P. Complete with Reverse Gear	\$280.00
4-cyl. 16 to 20 H. P. Complete with Reverse Gear	\$395.00
4-cyl. 25 to 35 H. P. Complete with Reverse Gear	\$475.00

PEERLESS MARINE MOTOR CO.

2150 NIAGARA STREET,

-:-

BUFFALO, N. Y., U. S. A.

"Popular engines at popular prices" is the policy which has brought the Peerless to the front with rapid strides in the last three or four seasons. There is nothing cheap about this engine except the price, and that is cheap when you consider the quality of design that goes into it, and the quality of service that comes out of it.

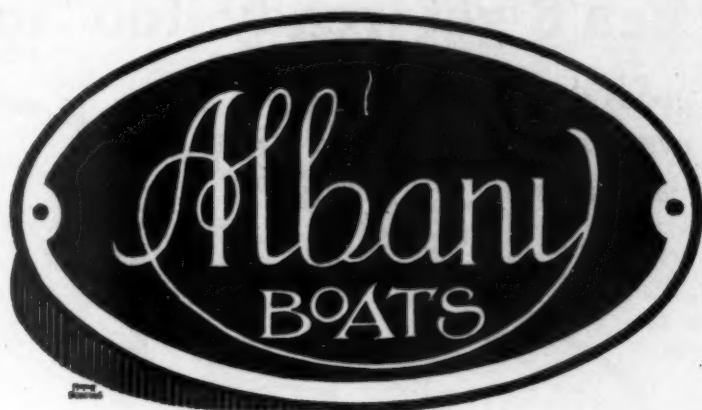
Standard Medium Duty, Heavy Duty and Speed Models

Peerless engines are making good in fishing boats, runabouts, cruisers, tugs and work boats of many sizes and types. They are all four-cycle engines, with big bearings, heavy crankshafts and all parts of ample size to stand up under continuous severe service.

Get our catalog and study Peerless construction and Peerless prices. If you have a friend who owns a Peerless, ask him what he thinks about it. Note the high-grade equipment and accessories we furnish. Investigate the whole Peerless proposition as searchingly as you wish. We will help you.

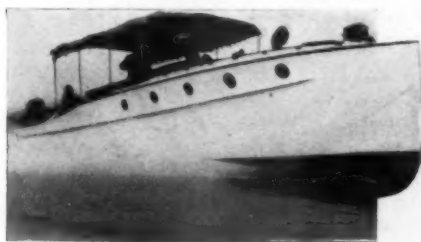
If your investigation is impartial, we will be satisfied with the result.

Be Sure to See the



at the Show

**Fast
Runabouts
and
Cruisers**



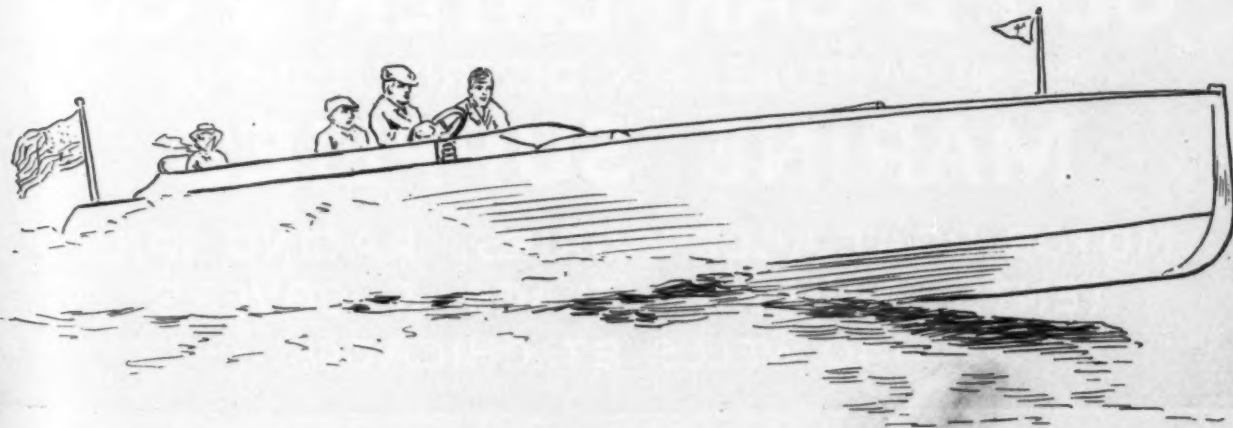
You will see many fine boats and glistening engines. But we doubt whether you will find a more interesting exhibit than the Albany Boats.

We specialize in fast boats. High quality speed runabouts and express cruisers that are the last word in perfection of design and finish.

If you are unable to visit the Show, don't fail to write for catalogs, and tell us which type of boat you prefer. We want you to own an "Albany Boat"; will your inquiry reach us soon?

ALBANY BOAT CORPORATION
7th Street, Watervliet Albany, N. Y.

20 MINUTES BY TROLLEY FROM ALBANY UNION STATION



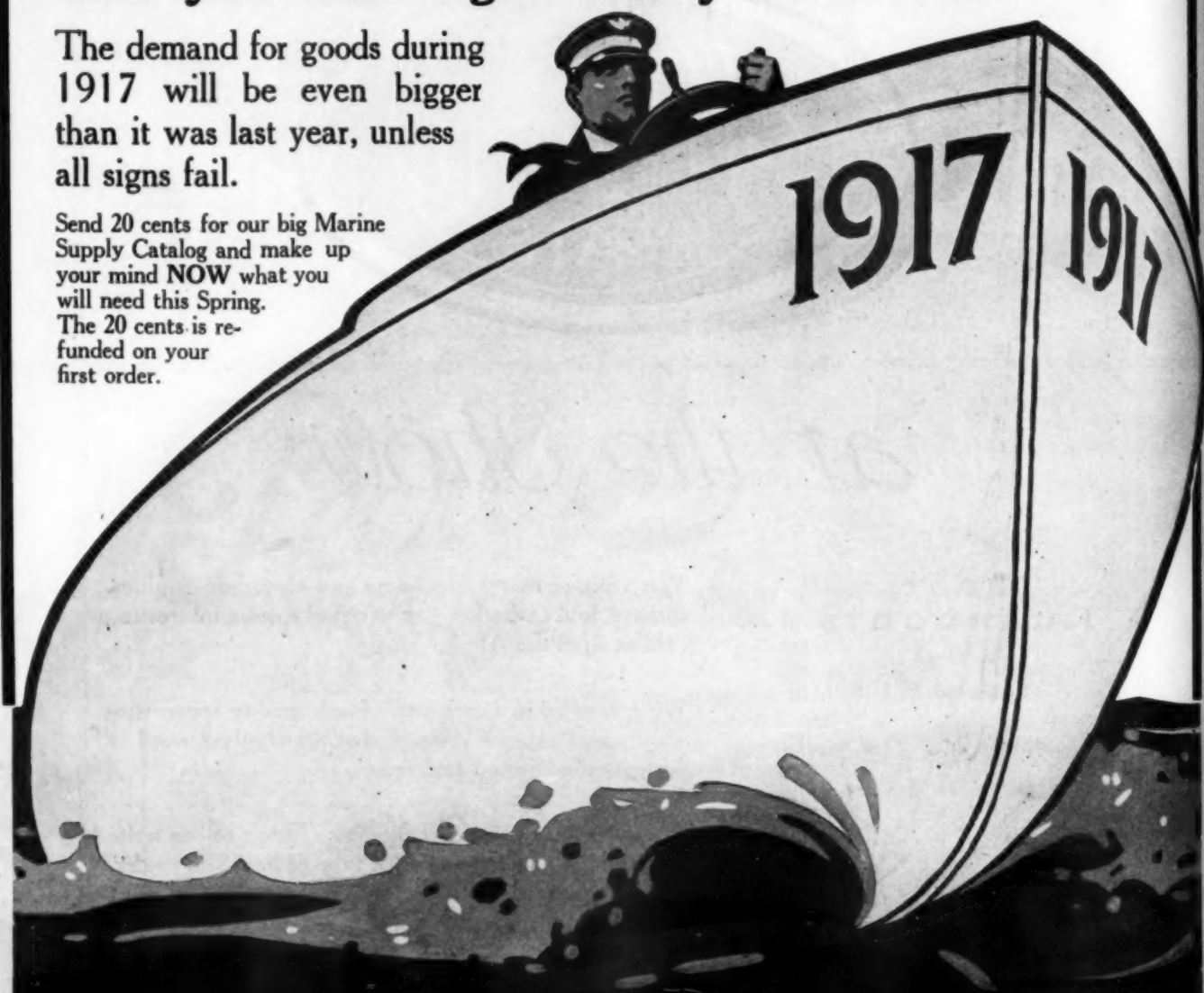
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SHE'S COMING FAST

The 1917 boating season is almost here and you can't get ready too soon.

The demand for goods during 1917 will be even bigger than it was last year, unless all signs fail.

Send 20 cents for our big Marine Supply Catalog and make up your mind **NOW** what you will need this Spring. The 20 cents is refunded on your first order.



GEO. B. CARPENTER & CO.

MANUFACTURERS & DISTRIBUTORS OF

MARINE SUPPLIES

MOTOR BOAT ACCESSORIES, RACING SAILS,
TENTS, AWNINGS, FLAGS & COVERS
440 WELLS ST. CHICAGO.

The Cheapest Power

If you have a marine or stationary gas or gasoline engine of 18 H. P. or more, here is an opportunity for you to actually save 75% to 90% of your fuel expense without sacrificing a single item of convenience or efficiency. It doesn't matter whether your boat is a pleasure cruiser or a commercial craft, you can laugh at the cost of fuel when you have installed a

Producer Gas

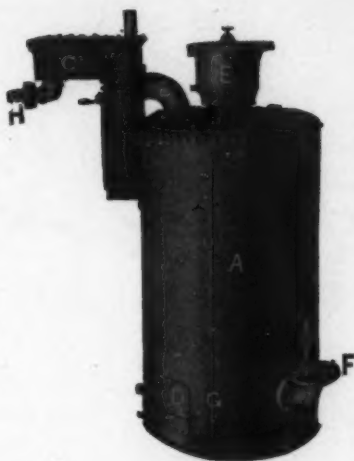
Gasoline at
2c a Gallon
Steam
Coal at \$1.25
a Ton

Galusha Gas Producer

Galusha Producers have been in successful use for about ten years. You will find them in big boats in every part of the world. Many users have ordered producers for other boats after the first trial. Every user reports satisfactory service and a great saving in expense.

A Galusha Producer is safer to have aboard than a tank of gasoline. It is absolutely safe under every condition. No gas is made except when the engine is operating.

Any man who can run a gasoline engine can still operate it when equipped with a Galusha Producer. Requires very little attention as the producer is practically automatic.



The Galusha Gas Producer makes gas out of coal, coke or charcoal. It can be used in connection with any ordinary engine, in place of gasoline, kerosene, distillate or other liquid fuel.

The actual fuel consumption is one pound of coal per horse power per hour. You can secure 100 H.P. for ten hours from \$2.50 worth of coal (figuring \$5.00 per ton). This is just one-tenth the cost of the same power developed from gasoline bought for 20 cents a gallon.

Producer gas is revolutionizing all standards of power cost on land and sea. It is an advanced development which is making rapid strides toward universal use.

Let us tell you more about the Galusha Gas Producer and what it is doing in various installations. The facts are so remarkable that our whole story is based on facts, not claims.

Write today for
Bulletin No. 8 and
complete information.



Ghent, Belgium.

Gentlemen:

We have pleasure in sending you a couple of photographs of our tug-boat "Wolterine IV," equipped with 75 H.P. motor switched onto a Galusha Gas Producer.

This boat is very strongly built of $\frac{1}{4}$ " steel plates, and measures approximately 50' in length by 11' 2" beam. The draft is about 5' 3".

The boat is used exclusively for towing heavy barges on our canals and on the river Scheldt, and we find that we can most successfully and satisfactorily handle four barges carrying each about 300 tons of cargo at an average speed of 6 kilometers (about 4 miles) per hour, which is the speed allowed on most of our canals.

The motor works very nicely on producer gas, with the utmost regularity and a minimum attention to engine or producer. We use this tug mostly for long distance towing when the engine has work for three or four days in succession during 10 to 12 hours a day, using full power practically all the time.

The consumption of small sized anthracite coal (about $\frac{1}{4}$ " to $\frac{1}{2}$ " in size) on such occasions, including the stand-over consumption over night, varies from 300 to 320 kilos (660 to 704 lbs.) per 24 hours. The coal costs us about Frs. 22 (\$4.30) per ton of 1000 kilos (2200 lbs.). So you can easily see what an economy this means over either steam or kerosene, the actual cost per H.P. hour being in fact less than one centime (one-fifth of a cent).

The maneuvering qualities of the motor on producer gas are extraordinary. We can run the engine dead-slow and any intermediate speed up to about 300 revolutions per minute at will, without the slightest tendency to stop, or without disengaging the clutch. The boat moves with the greatest ease around the bar and locks. We check the engine by timing the ignition, but this can most successfully also be done by varying the quantity of gas admitted to the cylinders, and we have never had any trouble with regard to the gas.

We trust that this information will be of interest to you. In due time, we shall send you a view of the boat with a heavy tow as described above. Meanwhile, we beg to remain,

Very truly yours,

Note.—In use several years. Owners have since bought more of our Marine Gas Producers.

Engine Manufacturers:

You can sell more engines if you can show prospective purchasers the small cost of running them with Galusha Producers. We are anxious to cooperate with you for the development of the industry. Run your factory with your own engines and Galusha Producers. Write us for proposition.

Nelson Blower & Furnace Co.

Elkins and "L" Streets

SOUTH BOSTON

MASS.



Prest-O-Lite

For Boat Lighting

The electric system of any boat needs, above all else, a reliable storage battery—a battery that is a lively, healthy source of power for starting and lighting.

When you buy a new battery, it will pay you to get a Prest-O-Lite Battery—a battery specially designed by our engineers to meet the exact needs of the electric system on your boat. This

Prest-O-Lite Storage Battery For Your Electric System

is a battery of abundant power, vitality and durability—of superior design, construction and efficiency. Not only is it a better battery, but it is backed by the great Prest-O-Lite Service organization. This service is at your disposal to help you give your battery the care which will keep it in first class condition and insure your lasting satisfaction.

Let us send you full particulars regarding this powerful, efficient battery and the service back of it.

On a great number of America's finest pleasure and speed boats, Prest-O-Lite Acetylene is giving greatest satisfaction for many lighting purposes. For searchlight, cabin and signal lights it is ideal.

Simple to install and operate, it has found favor with thousands of boat owners everywhere. On *your* boat you can quickly and inexpensively install

Prest-O-Lite Acetylene Lighting For Your Gas System

Prest-O-Lite, in suitable sizes, gives an abundant supply of clear, penetrating light for all lighting purposes, on any size boat. It also can be easily and economically used with various appliances, which we furnish at small cost, for cooking and engine priming. Prest-O-Lite Acetylene also is quick and convenient for soldering and brazing repairs on your boat.

Every boat owner, buyer or builder has many profitable uses for Prest-O-Lite Acetylene. Get details.

The Prest-O-Lite Company, Inc.

U. S. Main Offices & Factory, 260 Speedway, Indianapolis, Indiana
Canadian Office & Factory, Merritton, Ontario, Can.

The World's Largest Makers of Dissolved Acetylene

Branches and Charging Plants in all Principal Cities

Johns-Manville Fire Extinguisher



**The law demands a fire extinguisher
—equip your boat with the best**

THE wise motor-boat owner does more than equip his boat to meet government regulations. He selects his safety appliances for the protection they afford. When he buys a fire extinguisher, he appreciates that some day he may need it to save the boat, or it may be his life. He realizes that his boat is full of tight corners and that fire picks out these hard-to-get-at places. And he knows that the best way to fight these fires is with the Johns-Manville Fire Extinguisher.

—the only one-quart extinguisher discharged either by pumping or by air pressure previously pumped up. With the Johns-Manville Fire Extinguisher you can kill at the start any incipient fire, whether of gasoline, oil, grease, kerosene or electrical origin.

The J-M Fire Extinguisher is

approved and labeled by the Underwriters' Laboratories, Inc., and is used by the U. S. Navy and War Departments.

J-M Extinguisher Fluid—non-deteriorating and harmless to skin, fabric or machinery—is the only liquid recommended and guaranteed for recharging the J-M Extinguisher.

* * *

TO THE TRADE—Ask the nearest J-M Branch for details—generous discounts, uniform and rigidly maintained regardless of size of order, coupled with a sales policy designed for your protection.

H. W. JOHNS-MANVILLE CO.

NEW YORK CITY

Branches in 55 Large Cities

**J-M — FIRE —
J-M EXTINGUISHER**



WINTON

WHEN YOU CONTEMPLATE
THE PURCHASE OF A HEAVY
OIL POWER PLANT FOR A
COMMERCIAL VESSEL, YACHT,
MOTORSHIP OR SCHOONER,
REMEMBER THAT WINTON
OIL ENGINES ARE JUST AS
UNUSUAL AS WINTON MARINE
GASOLINE ENGINES.

THEY STAND ALONE IN THE
OIL ENGINE FIELD AND FOR
THIS REASON WILL WARRANT
YOUR INVESTIGATION.

WINTON ENGINE WORKS

Cleveland, Ohio, U. S. A.

DYSON STANDARD SCREW PROPELLERS

For Motor Boats
and Small Vessels

Superior Workmanship



Speed Model

10 to 50 inches in Diameter

THREE MODELS

SCIENTIFICALLY AND PRACTICALLY CORRECT IN ALL FEATURES

Specially Designed by

Capt. C. W. DYSON, U.S.N.

International Authority on
Propellers and Screw Propulsion



Utilitarian Model

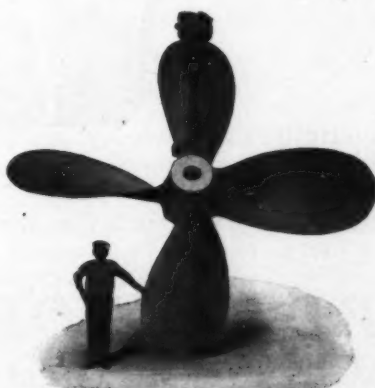


Weedless Model

SPARE'S

Manganese Bronze Propellers

Made to special order in any
size from 10 inches to 20 feet
in diameter.



Diam., 17 feet; Wt., 18,000 lbs.
Made of Spare's Bronze.

Strong and Tough
Light and Thin-bladed
Non-corrosive

Write for particulars

UNEQUALLED FOR EFFICIENCY AND LASTING QUALITIES

SOLE MANUFACTURERS

AMERICAN MANGANESE BRONZE CO.

3521 Rhawn Street

Holmesburg, Philadelphia, Pa.

**You Can
Save \$150
to \$225 by
Deciding
to Equip
Your Boat
with an**

Erd

**35
H.P.
4 Cyl.**

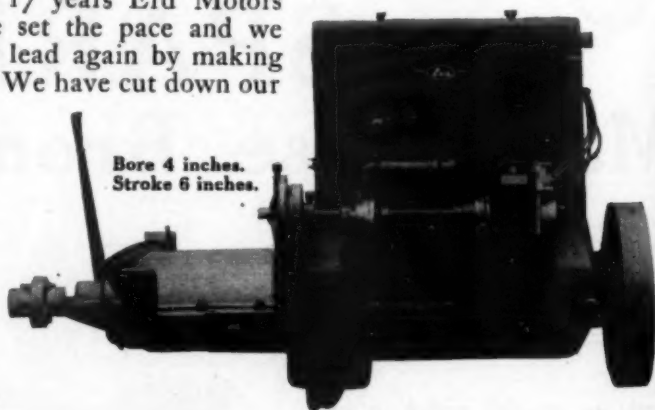
Valve-in-Head Unit Power Plant

A better motor than ever. Improved over last year's product. Burns either gasoline or kerosene. The most economical motor of its size ever made. Made expressly for runabouts, cruisers and work boats, in two types of one size—4-inch bore and 6-inch stroke.

a price that no competitors can afford to meet. production costs by building a bigger factory, installing more machinery, and increasing our output to ten times what it was last year and **BY CONFINING OURSELVES TO BUILDING BUT ONE SIZE MOTOR.** That's why we can give even more for the money and sell for less than before.

Don't decide on a power plant until you investigate the ERD and get our wonderfully low 1917 prices. You'll be surprised at the big saving.

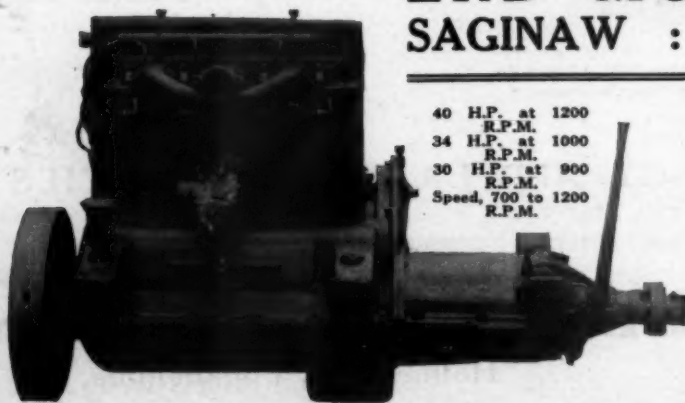
For 17 years Erd Motors have set the pace and we now lead again by making We have cut down our



Bore 4 inches.
Stroke 6 inches.

Remember there is no better motor made than the Erd—regardless of price. Write for literature and be convinced.


ERD MOTOR COMPANY
SAGINAW : (west side) : MICHIGAN



40 H.P. at 1200
R.P.M.
34 H.P. at 1000
R.P.M.
30 H.P. at 900
R.P.M.
Speed, 700 to 1200
R.P.M.

Wanted—Owner-Agents!

We are selling ERD MOTORS this year through owner-agents. We want one live man in each locality to demonstrate the ERD MOTOR in his own boat. We will make you a liberal discount on your own motor and give you a chance to make big money selling your motor boat friends. Write at once for our confidential dealer's proposition.



JOHNSON'S GUARANTEED CARBON REMOVER

IS A HARMLESS LIQUID, to be poured into the cylinders of gasoline and kerosene engines. It softens the carbon and releases it from the metal. It then burns, powders and is blown out through the exhaust. Five minutes' time and no labor required. You will save from \$3.00 to \$5.00 over any other method, without loss of time and with very much better results.

Put New Life In Your Engine

A dose of Johnson's Carbon Remover—the engine laxative—will increase the power of your boat—stop that knocking sound—prevent pre-ignition—quiet your motor and reduce your gasoline consumption from 12% to 25%.

For Automobiles and Motorcycles

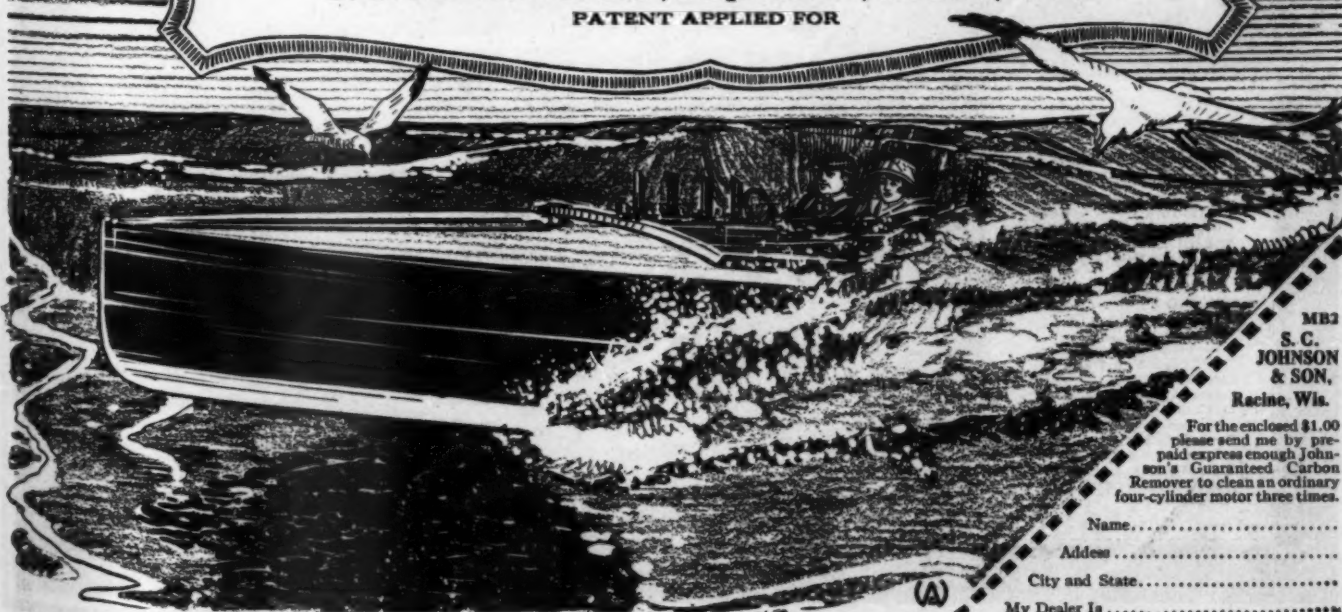
Johnson's Carbon Remover is splendid for gasoline engines of all kinds—automobiles, motorcycles, stationary engines, etc. Also fine for cleaning spark plugs. Johnson's Carbon Remover cures 80% of engine troubles.

Special Offer

If your dealer cannot supply you with Johnson's Carbon Remover send us \$1.00 and we will forward you enough to thoroughly clean an ordinary four-cylinder motor three times. Use attached coupon.

S. C. Johnson & Son, Dept. MB2, Racine, Wis.

PATENT APPLIED FOR



MB2
S. C.
JOHNSON
& SON,
Racine, Wis.

For the enclosed \$1.00
please send me by pre-
paid express enough John-
son's Guaranteed Carbon
Remover to clean an ordinary
four-cylinder motor three times.

Name.....

Address.....

City and State.....

My Dealer Is.....

When writing to advertisers please mention MOTOR BOATING, the National Magazine of Motor Boating.
Advertising Index will be found on page 50.

PARAGON REVERSE GEARS

Ever Try to Separate Two Panes of Glass?



HARD, wasn't it? That's because, as an engineer would say, every point on one of the surfaces is in contact with every point on the other surface. Add a little moisture to the surfaces and the feat is well nigh impossible.

Thus you see how the smoothly ground surface of the friction plates in Paragon Reverse Gears obtain their tremendous holding power. These plates are ground to a glass-like smoothness.

This, with the unusually large friction area, makes slipping on the forward drive almost unheard of in Paragons, when properly adjusted.

This great friction area enables your gear to take hold gradually, and when you have thrown your lever way into forward you can bet your last dollar that your motor will deliver every ounce of power to the propeller—where it belongs.

That's one reason why America's foremost marine engine builders depend on Paragons to uphold the prestige of their motors.

You can have a Paragon on that new motor of yours if you will ask for it—and it's well worth asking for—and insisting on.

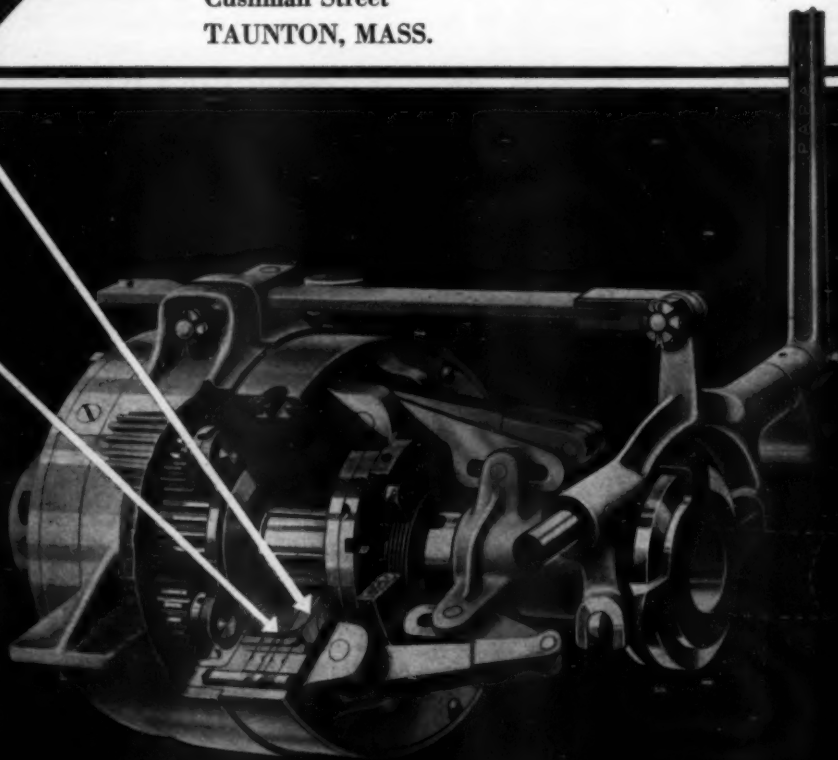
SEND FOR CIRCULAR

PARAGON GEAR WORKS

Evans Stamping and Plating Co.

Cushman Street
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PARAGON AGENTS
BOSTON, Rapp-Huckins Co.
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CLEVELAND, Upson Walton Co.
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LACY MARINE MOTOR COMPANY
announces a new high-speed motor
especially designed for the modern
Express Cruiser and Runabout

Exhibited on Main Floor at the
Motor Boat Show, New York

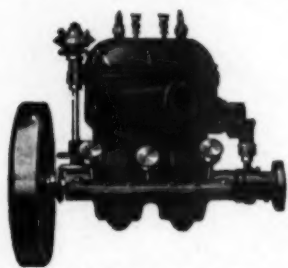
Address Communications to

LACY MARINE MOTOR COMPANY
10 St. James Place Rochester, N. Y.

Start This Year Right—Build for the Future

OUR 18th ANNUAL ANNOUNCEMENT

THE name "EAGLE" applying to a Marine Engine is a guarantee of satisfaction from the standpoint of correct design, quality and efficiency.



The Model 2K Eagle Marine Engine

We are to-day the largest producers of two cycle engines in America.

We have a large line to choose from and offer a delivery service that will be a surprise to you.

Every indication points to 1917 as the greatest Boat Building Year in our history. The demand for Engines will be enormous, the difficulties in manufacturing due to conditions existing in the raw material market will result in advanced prices. We urge our customers to place their orders early.

It appears almost useless for us after 18 years of continuous national advertising and with a business record unsurpassed, to place our merits before you for consideration at this time, nevertheless there are a few of the better class dealers that we feel should be associated with us and selling the most complete and up-to-date line of 2-cycle engines on the market.

The EAGLE is the popular priced line with excess power and excess value. You never did, and never will, purchase better value for your money than that offered you in every "EAGLE" ENGINE.

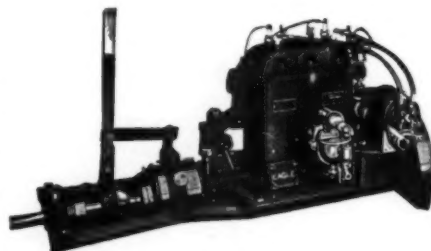
Therefore, we address ourselves to the live dealer, to the dealer who has an established business, who is sufficiently alert to grasp the importance of representing an established popular line and who realizes the importance and value of an association with an established house.

We want you to know that we are building our business on large lines. We insist on your receiving the best Engines at attractive prices; we insist that you get engines when they are wanted.

Yes, we are one of the pioneers in the marine engine field. "Eagle" engines have a record of making good and they are better to-day than ever. The more you have us build, the cheaper we can build them, and the less you will be obliged to pay.

Mr. Dealer and Mr. Builder, we want you to realize the importance of selling a quality engine. Stop working in a circle, have a purpose. Business without a purpose is "like a ship without a rudder." It's up to you to make good or you make way for the other fellow. Don't be "penny-wise and pound foolish." It's a penny-wise policy to sell questionable engines when you can sell one with a world-wide reputation. Associate yourself with a live organization. Handle "Eagles." Talk "Eagles," and you will appreciate the importance of what we are attempting to impress upon you.

Start the year 1917 right; build your business for the future. There is no profit for you if you are obliged to change your sources of supply on engines each year. Our most desirable and prosperous dealers are those who have sold Eagle Engines for periods of six to twelve years. They have made money in following this policy and we see no reason why any live and enthusiastic dealer or builder cannot do the same.

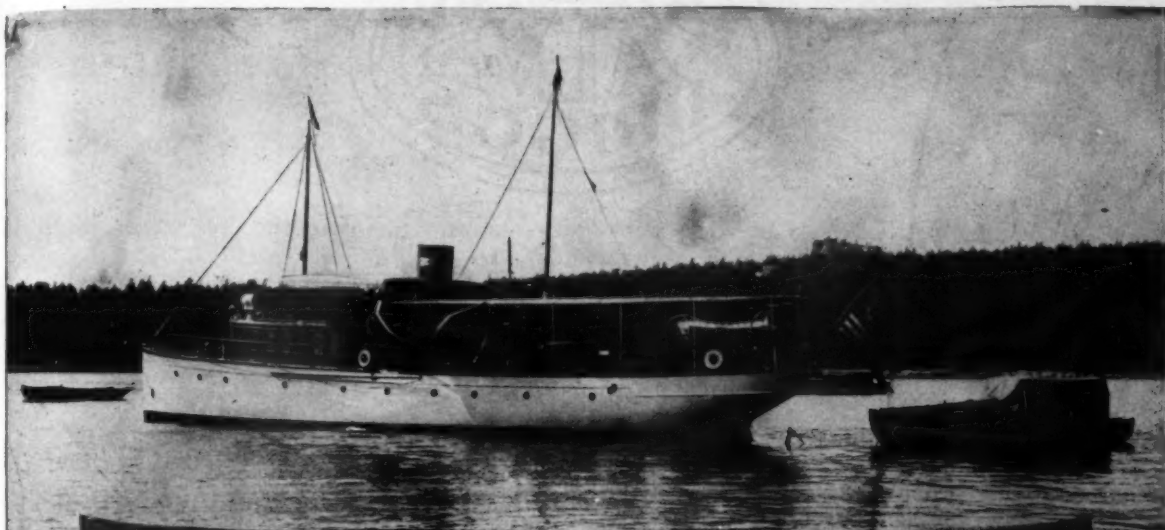


The Model 2 "O" Eagle Marine Engine
Unit Power Plant

This engine holds the world's record for speed. Running at 1,300 R.P.M. (at which speed all are tested), it develops 17½ actual H.P., making it the most desirable engine for propelling boats from 16 to 25 feet in length ever designed.

THE STANDARD COMPANY

Torrington, Conn., U. S. A.



"Tramp is a Beauty— Perfect in Every Respect"

The Plaza
New York

TO THE MATTHEWS BOAT CO.
Port Clinton, Ohio

Gentlemen: I take great pleasure in telling you how much I enjoyed my boat, TRAMP II, designed by Gielow & Orr, and built by you for me. As you know I used the boat on the Maine Coast, at Seal Harbor. The TRAMP is a beauty, perfect in every respect, and much admired.

As for myself, I can't begin to express my gratitude to the architects and builders who made it possible for me to get so much pleasure out of the boat during this past summer, and anticipate having many better summers in the future.

Most sincerely yours,

November 5, 1916.

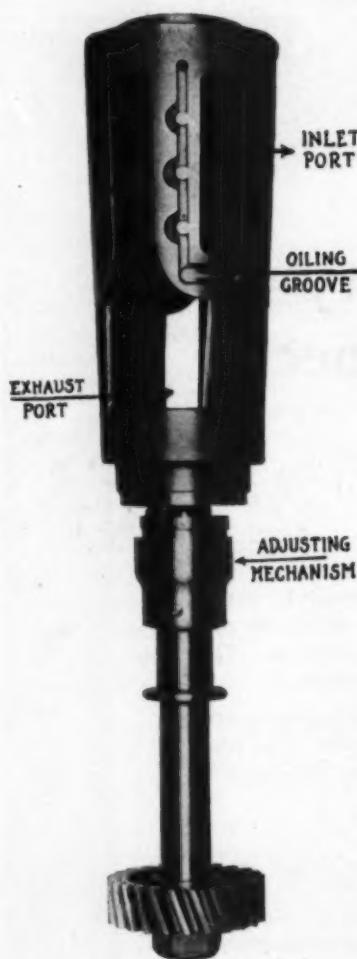
Mrs Mark Hanna

Tramp II is a salt water yacht, 90x16 feet, twin screw—a quality craft such as only the Matthews plant can build. Invariably Matthews craft satisfy their owners. *You can be satisfied too.*

THE MATTHEWS BOAT COMPANY
Marine Railways, Storage Basin and Works 602 Laurel Ave., PORT CLINTON, O.



This view shows the valve employed in the 4" bore x 6" stroke 6-cylinder **SILENT VALVE-DRIGGS** Marine Engine.



Note the large inlet and exhaust ports. These have many times the area of valve openings of poppet valve motors of equal bore and stroke.

Makers of automobile motors at present are announcing sixteen-valve four-cylinder motors for which they claim increased efficiency. Sixteen valves for a four-cylinder motor are employed to obtain larger port openings.

To accomplish this, they use **two** inlet and **two** exhaust valves for **each** cylinder.

SILENT VALVE construction obtains the same result with only **one** valve for each **pair** of cylinders. Think how much simpler this is!

THE SILENT VALVE-DRIGGS Four-Cylinder Engine, instead of having sixteen clattering poppet valves, obtains the same result with **only two** rotary **SILENT VALVES**.

Note the unrestricted gas passages obtained with **SILENT VALVES**. There are no sharp turns or sharp corners to retard the flow of gas. These large unrestricted gas passages insure full charge on the intake stroke and complete scavenging on the exhaust stroke.

DRIGGS ORDNANCE CO., Inc.

120 BROADWAY

NEW YORK, N. Y.



This view shows the **SILENT VALVE** and adjusting mechanism unassembled.

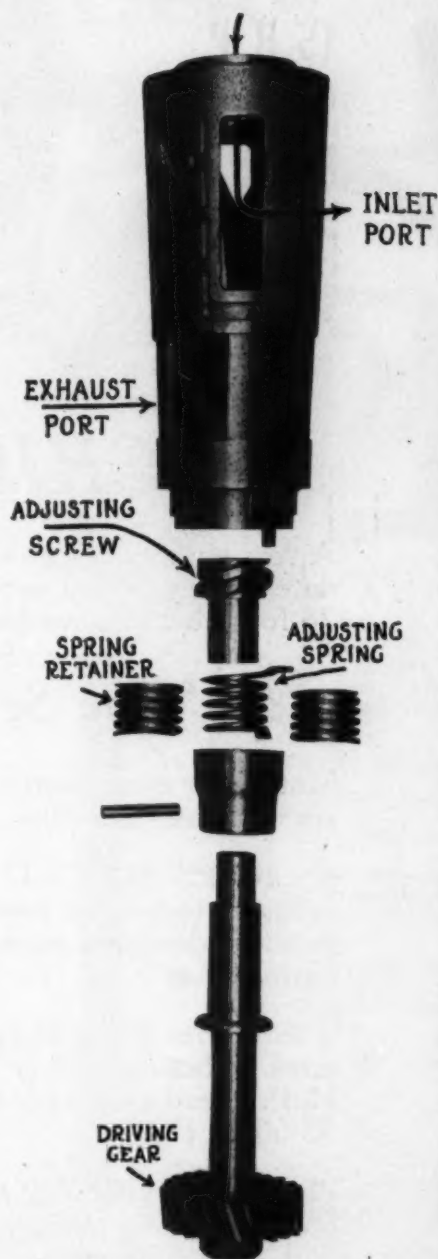
The valve shaft is driven by means of a gear from the time shaft. The steep pitch adjusting screw engages in a thread in the valve.

The valve driving spring forms the driving connection between the valve driving shaft and the valve.

As the valve heats, it expands, and requires greater effort to drive it. This extra effort causes the valve shaft to advance angularly a fraction of a degree relative to the valve against the action of the spring. In so doing, the screw tends to screw out of the thread in the valve, and move the valve upward in its tapered seat.

The valve lifts only enough to make the driving effort normal. This effort is normal when clearance is such that there is a film of oil of almost infinitesimal thickness between the valve and its seat. The adjusting mechanism controls this accurately so that the oil film is maintained a constant thickness.

Thus a valve is produced which is efficient, silent, simple, adjustable and gas tight at all times.



DRIGGS ORDNANCE CO., Inc.

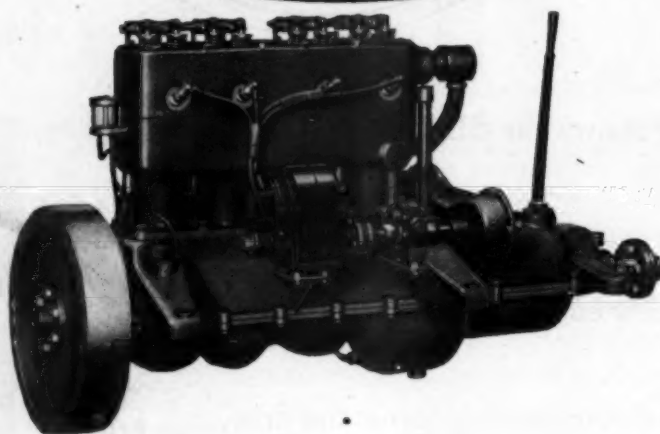
120 BROADWAY

NEW YORK, N. Y.

Scripps

15 H. P.

(Develops
over
20 H. P.)
Valve-
In-Head
Four-
Cylinder
Four-Cycle



\$298.00

Complete
Unit Power
Plant
(Magneto and
reverse gear
included.)

"SCRIPPS SPECIAL"

A real engine. A good, honest, simple, reliable, economical, up-to-date four-cycle unit power plant designed to power the average 17 to 28-foot boat at a modest cost.

"The Scripps Line Complete"

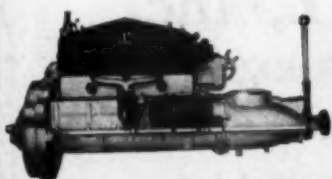
Motors for every boat and purpose—10 to 125 H. P.—two, four and six cylinder—gasoline, kerosene and distillate.

"SCRIPPS MIDGET"—light weight champion. A 10 H. P. four-cylinder four-cycle complete unit power plant weighing only 200 pounds, designed especially for power dinghys and tenders of the better class.

The "Series 'B'" —the pioneer "all-enclosed" engine now made in six sizes. Maximum duty Models in 12-14 H. P., 24-28 H. P., and 36-42 H. P. Speed and semi-speed Models in 15-17 H. P., 35-40 H. P. and 52-60 H. P.

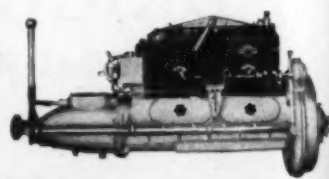
"SCRIPPS GREYHOUND"—100-125 H. P.—an all-enclosed High Duty Six, long stroke, valve-in-head engine for express cruisers and high class runabouts.

Dealers in all principal cities. Consult your telephone directory under SCRIPPS for local address—or send for new catalog



Scripps Motor Company

631 Lincoln Ave. Detroit, Mich., U. S. A.



SCRIPPS MOTOR CO., 631 Lincoln Ave., Detroit, Mich.

For YOUR boat

JOE'S REVERSE GEAR

WE build Joe's Reverse Gears and Clutches for every size and type of boat. You may have a hydroplane, launch, cruiser, or perhaps a big tug or heavy freighter; no matter which you have, we build the clutch that will give you the most service and satisfaction for your money.

Joe's Gears are known the world over. They are used in record breaking speed boats like Miss Detroit (shown below), Miss Minneapolis, and in passenger boats, commercial boats, auxiliaries, cruisers, etc. They excel in the qualities that make a good gear worth while.

Joe's Duplex Drive is the only heavy duty gear with nearly the same speed ahead and astern that does not depend on locked gear teeth for forward drive.

Write today for latest catalog. It contains valuable information you should have before you select any gear, clutch, or starter. It is free.

The Snow & Petrelli Mfg. Co.
154 Brewery Street New Haven, Conn.

JOE'S SAFETY Rear Starters

A genuine safety device and a sure protection against kick back. Mounted either on adjustable frame or bulkhead bracket, and may be attached at either end of the motor. Saves labor, money and injury. Price reasonable.

AGENTS: J. King & Co., 10 Church Row, Limehouse, E. London, Eng.; L. H. Coolidge Co., Seattle, Wash.; W. C. Diabrow, Jr., 71 Cortlandt St., New York; G. M. Josselyn & Co., San Francisco, Cal.; Wood Vallance & Leggat, Vancouver, B. C.; A. R. Williams Machinery Co., Toronto; W. D. Foreman, 1425 Michigan Ave., Chicago.

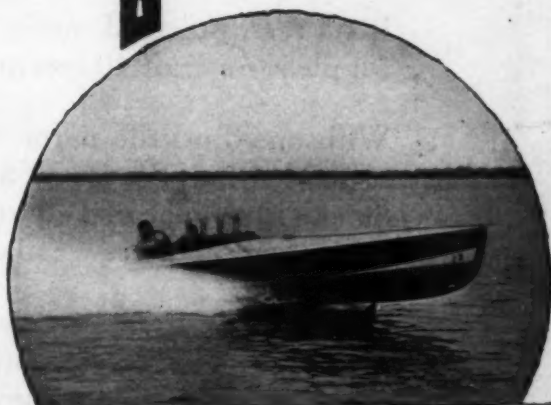


JOE'S DUPLEX DRIVE HEAVY DUTY REVERSE GEARS.
For Heavy Boats and Racing Craft.

JOE'S FAMOUS HIGH POWER GEARS.
For High and Medium Speed.

JOE'S HIGH SPEED ONE-WAY CLUTCHES.
Especially for Hydroplanes and High Speed Propositions; Smallest Size Transmits 30 H. P. at 1,000 R. P. M.

JOE'S REGULAR ONE-WAY CLUTCHES.
A high class, low priced clutch for general uses.



"Miss Detroit." Powered with a high-speed Sterling motor. Equipped with a Joe's Duplex Drive Gear.



Your Boat Without a C & W Wireless Outfit Is Like a Man Minus Hearing and Speech

At any moment your loved ones may be in peril. Your business may face a sudden crisis. In a dozen dilemmas, your presence might be the single factor to stay a panic or save a life.

And there you'd be! Just beyond hearing; just out of sight! Yet as powerless to prevent disaster as if marooned on a South Sea Isle.

Those are life's tragic moments. When in a single instant—the C & W Wireless Outfit repays its cost a thousand fold.

It's a **real, practical** outfit. Not a costly, inefficient toy. Designed for pleasure-craft 40 feet and over. And a marvel of range and power.

With one-third the parts—one-fifth the weight—one-sixth the space—and one-half the cost of any other practical outfit—the C & W has an efficient range of 100 to 800 miles. Yet so simple that you or any member of your crew can operate with ease and speed.

The C & W is built on a **patented** principle; eliminating high-tension currents. The **safest** outfit made. Easily installed on any boat afloat, or built right into new boats.



Before putting your boat in commission this Spring—or closing the contract for that new boat you plan—

Take up the question of a **C & W Wireless** with your architect and us.

We'll be glad to co-operate with you and him—to assure you the "very last word" in a **fully-found** boat.

Interesting booklet on the application of C & W Outfits to boats of every size and type—sent FREE on request.

CUTTING & WASHINGTON, Inc.
Radio Apparatus

26 Portland Street, Cambridge, Mass.

The Genuine—

now packed
in this way
for your
protection

It is your protection against substitution when you buy **LEAK-PROOF** Piston Rings. The genuine—the McQuay-Norris manufacture—are packed, individually, in these plainly labeled, sealed parchment containers.

The package protects the rings from rust and the effect of rough handling while in stock. Delivers them to you just as they left the factory—perfect in fit and finish, accurate to 1/1000 of an inch.

This package covers the one piston ring that protects engine efficiency. Protects engine life because its light, equal tension minimizes wear of cylinder walls. Protects power because it prevents power leakage and ensures minimum carbonization.

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"To Have and to Hold Power"—the standard handbook on gas engine compression. It shows how power depends on piston rings and why McQuay-Norris **LEAK-PROOF** Rings are more efficient than any others. Write Dept. B.

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And the one sure way of getting those first few explosions is to put the gas right at the spark so that something **has** to happen.

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No wonder that the bird-man is hailed the king of sportsmen, envied and admired.

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Doubly safe is the twin-motored Standard Hydroaeroplane, such as is now being supplied in quantities to the United States Government. Either of the two powerful motors with which this machine is equipped will fly the craft efficiently.

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FIRST PAN-AMERICAN AERONAUTIC EXPOSITION

HELD UNDER THE AUSPICES OF
THE AERO CLUB OF AMERICA
THE PAN-AMERICAN AERONAUTIC FEDERATION
THE AMERICAN SOCIETY OF AERONAUTIC ENGINEERS

GRAND CENTRAL PALACE NEW YORK CITY

FEBRUARY 8 to 15, 1917

This Aeronautic Exposition will have a special interest for yacht owners and motor boatmen, due to the possibilities for co-operation between aeroplanes and power boats for coast defense. Several manufacturers exhibiting at the Motor Boat Show will also exhibit at the Aeronautic Exposition.

Military representatives of practically every country of the world will visit the Exposition to see what the American Aeronautic industry is producing.

Congress has appropriated close to \$20,000,000 for aerial defenses. The aeronautic business in this country for the coming twelve months will amount to about \$50,000,000.

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Address all Communications to HOWARD E. COFFIN, Chairman

PAN-AMERICAN AERONAUTIC EXPOSITION, 297 Madison Avenue, New York
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ADMISSION 50 CENTS



DOES SHE SULK?

SOME motors you and I know about to our sorrow are as temperamental as a prima-donna,—they work themselves into a pesky mood, and just won't "go on." One minute they are chugging along, gay as you please, the next—put! put!—and they are through! And no amount of supplication or application can induce them to behave. Nice situation, eh? And all too familiar.

So much for "some motors." Now let's consider the FRISBIE. It's hard to refrain from superlatives in talking about the Frisbie Motor—it's so downright dependable and friendly. Settles down to work willingly and efficiently, and keeps a-going, obedient and submissive to your every wish. Never loafs, never complains,—just keeps purring along.

Power to burn too. Eagerly welcomes the gas and picks up with a snap and dash that will warm your heart and keeps sturdily at it as long as you say the word.

While you are making plans for that boat of yours, new or old, it's due you and us that you secure complete data on Frisbie—the Friendly Motor. Write us.

One cylinder to six—three horse power to seventy-five

VALVE-IN-HEAD MOTORS

FRISBIE FOUR

20-30 H. P.
Speed, 600 to 800 R. P. M.

Minimum Speed, 150 R. P. M.

Weight, with reverse gear, 725 lbs.

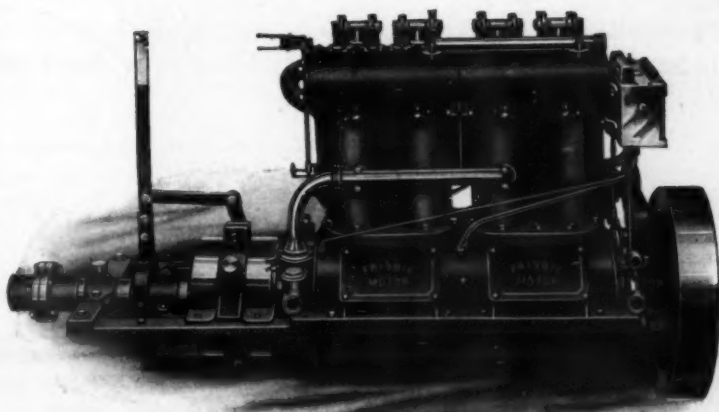
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Same design—30-40 H. P. 650 R. P. M.

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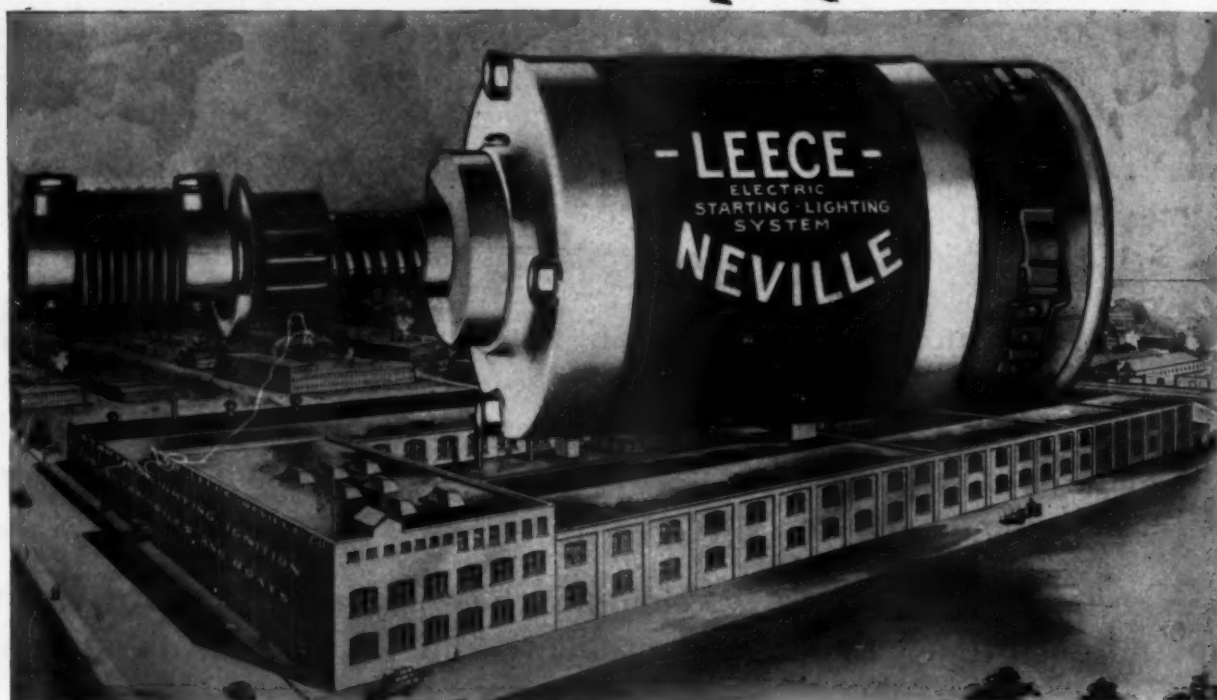
Weight, with reverse gear, 1200 lbs.

Length over all, with gear, 72 3/4 in.



**The Frisbie
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7 College Street
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The Biggest Thing In 1917 Boat Equipment



IS there anything more satisfactory than a quick easy start? For years motor boat owners pulled and tugged, sweated and cussed while starting their engines.

Then, progress in electrical development made practical the suggestion—"let electricity do it"—and Leece-Neville equipment came on the market.

It made good from the start back in 1910, progressive engine builders were quick to recognize its value, and with each succeeding year its popularity has increased until now, with thousands in service, it is indeed **the biggest thing in 1917 motor boat equipment.**

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THE LEECE-NEVILLE COMPANY
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A Detachable Engine

For Every Requirement

Specify your needs—We have the engine. In addition to the well known ONE AND TWO CYLINDER ARROW, we also manufacture the famous PORTO detachable—and special Model K engines for small boats, formerly built by the WATERMAN MOTOR CO.

Purchasing this well-known marine engine business, which we propose to develop further, enables us to give you exactly what you want.



Arrow Two Cylinder

for greater power—satisfies that “get away” feeling—a 4-horse engine which has the “pep” simple in construction—powerful—speedy—special muffler cut out. Vibration practically eliminated.

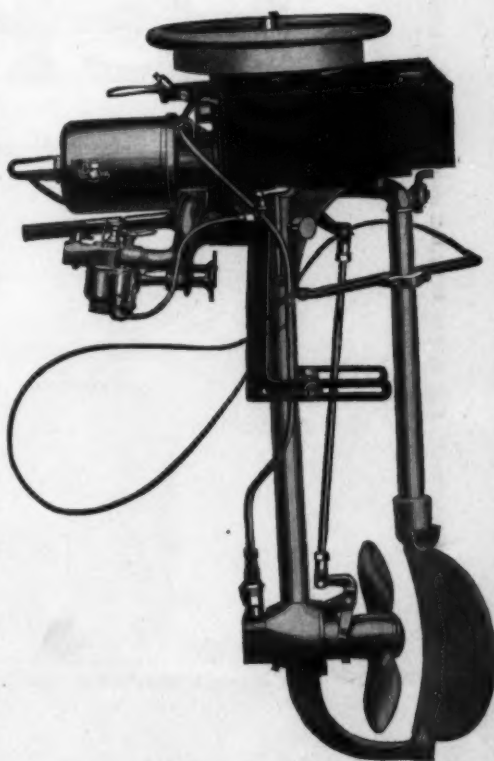
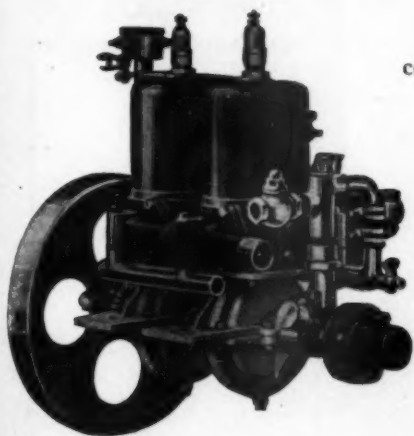
Don't be afraid of obstructions, as propeller releases and then swings back into place after passing over obstruction—and automatically locks. Reverse propeller with same control as Porto.

We also build same engine in one cylinder full 2½ horse power.

The Original Porto Detachable Engine

covering which all rights, patents and titles have been purchased from the Waterman Motor Company.

A wonderful source of enjoyment when attached to the stern of a boat—Flywheel magneto, copper jacketed cylinder—Underwater exhaust—a perfect sound modifier—independent rudder—steer from any place in the boat—Reversing propeller gives perfect control—change from forward to reverse at will without stopping engine.



Why Paddle a Canoe?

The little K-Engine in one and two cylinders (originally designed by Waterman Motor Company and manufactured by them for ten years) makes it easier, the canoe is made stronger and rides steadier. Single cylinder only 36 pounds—2 cylinder only 60 pounds. SIMPLE—DURABLE—DEPENDABLE.

We shall also continue to build the popular 4 horse power A-4 special.

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Since time immemorial, the Lizard, as the Southwest tip of the English coast is known, has been called the "graveyard of the sea." Galleys, Indiamen, liners—all have left bones on its rocky shores.

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"But it didn't fail. It ran like a watch the whole way, and its performance was the more remarkable because it began the trip without even a warming up."

A Reliable Engine for YOUR Boat

Whichever one of the 14 Ferro models you select for your boat you'll find it just as trustworthy as Mr. Vernon found his. Ferro engines are built for foul weather as well as fair.

The Ferro line includes three four-cycle models, 10 to 50 h.p.; eleven two-cycle models, 3 to 25 h.p., and the Ferro Detachable Motor for row-boats. The two-cycle engines burn gasoline or kerosene.

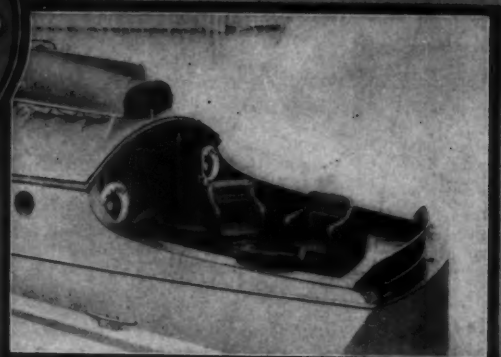
Write for catalog, stating type and size of your boat.

THE FERRO MACHINE & FOUNDRY CO.
210 Hubbard Avenue Cleveland, Ohio

MARINE ENGINES FERRO



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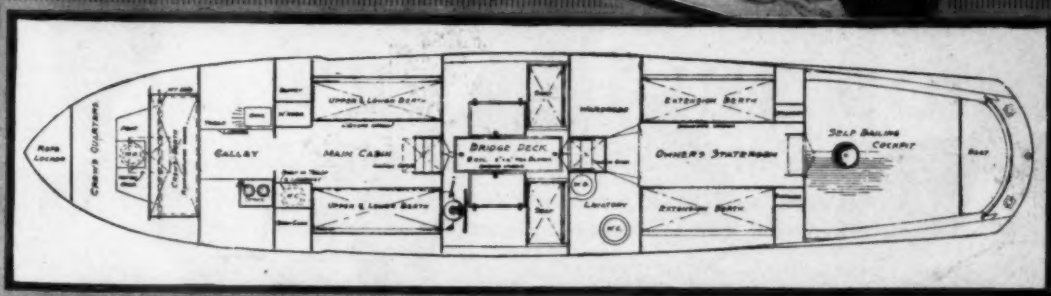


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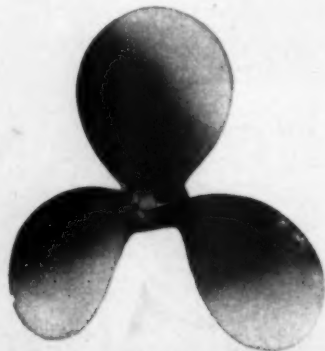
See our Exhibit at the New York Motor Boat Show

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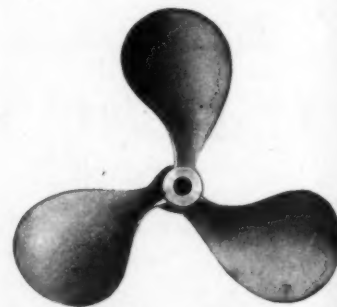
218 North Main Street, Freeport, Long Island, New York

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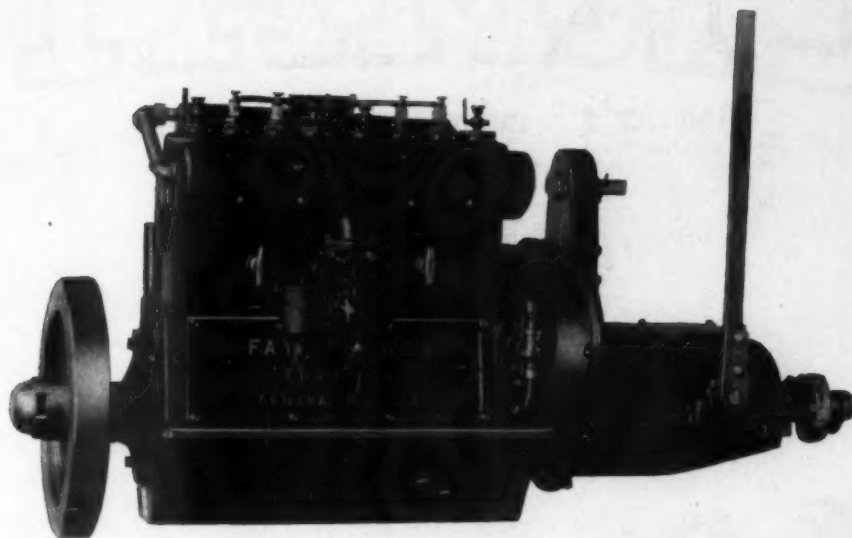
EVERYBODY KNOWS that an ordinary manufacturer is not equipped to make low priced propellers accurate to pitch and true screw.



EVERYBODY KNOWS that our Columbian patterns are accurate and right. Any propellers made from them must be accurate and efficient.



New— at the Motor Boat Show



The Model "L-40"

FAY & BOWEN ENGINE



Marine Engines
Four Cycle
Two Cycle

Motor Boats
Independent Electric
Lighting Units

Pumping Sets
"None Better Built"
Catalogs on Request.

PERHAPS the most prominent feature of our exhibit at the Motor Boat Show is the new Model "L-40" engine.

This is a sturdy little machine, developing 17 brake horse power at 1,400 R.P.M. The four cylinders are cast en bloc and have $3\frac{1}{4}$ " bore and $4\frac{1}{2}$ " stroke.

The weight complete is 450 pounds. A hand crank rear starter is embodied as a part of the design.

The quality is strictly "F & B" all through.

SEE THIS NEW ENGINE

Our exhibit will also include three complete boats, as well as the entire line of Fay & Bowen Engines.

This will be one of the most complete and important exhibits at the show. We hope you will take time to inspect it carefully.

FAY & BOWEN ENGINE COMPANY

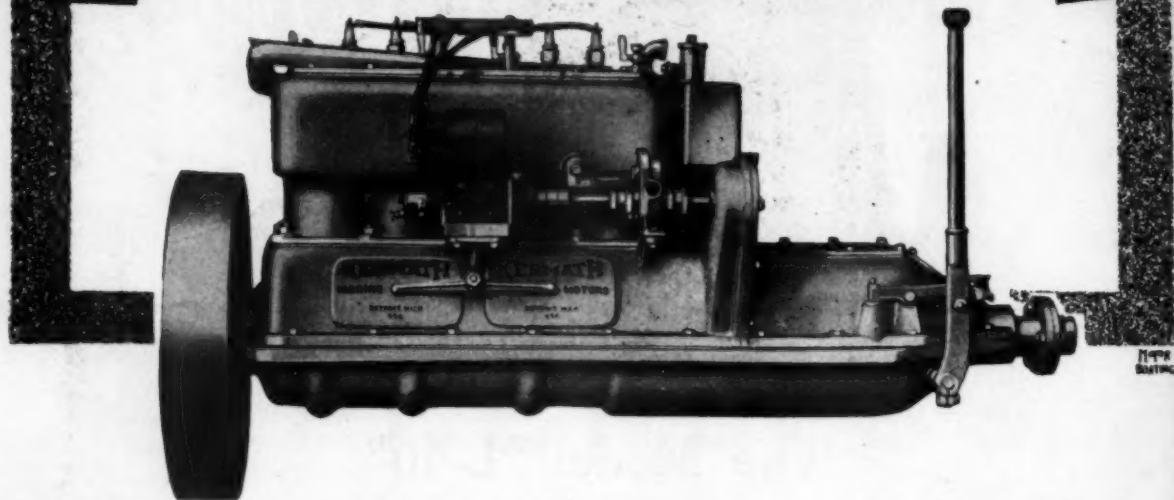
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New York Office: 50 Church St., on Concourse, Sutter Bros., Representatives.

Made for Canada by the St. Lawrence Engine Co., Ltd., Brockville, Ont.

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GUARANTEED
America's Standard 4-Cycle Motor



The Engine is as Popular as the Price

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Kermath popularity isn't based merely on popular price and wide-spread advertising. It is a good engine for the money, and a good engine regardless of the money. It is clean-cut in appearance,—smooth, quiet and powerful in operation,—reliable, durable and as near 100% trouble-proof as any engine can be made.

We confine our efforts to three models of popular size and uniform construction. If you have a boat of any type that requires from 12 to 20 H. P. you will be interested in knowing more about the Kermath. Don't wait until you are almost ready to buy, then have to take what you can get. Find out about the Kermath now and take your time to think it over.

Write today for catalog. Look us up when you visit the Motor Boat Show. Block K, at booth of our New York representatives, Bruns, Kimball & Co. Massachusetts customers call at Toppan Boat Co. space.

Four Cycle
12-16-20 Horse Power

Four Cylinder
\$225 to \$395

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